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ABSTRACT

Profiles for all curriculum research and development projects being sponsored wholly or in part by the Schools Council as of June 1, 1972, and a number due to start in 1973 are provided in a loose-leaf format. These profiles are intended as a brief introduction to the work of the Council's research and development projects and are grouped under the following twelve broad subject headings: English, Humanities, Languages, Creative Studies, Mathematics, Science, Inter-related Studies, Special Education, Welsh, School and Community, School Organisation and Resources, and Examinations. Within these groups, projects are arranged by primary, and secondary grades. Each profile includes the name and address of the director, the duration of funding, the age range concerned, and the grant provided. A summary of the area of inquiry, the procedures used, and the results of research obtained or to be obtained are included. Where applicable, a list of published materials, including ordering information, is appended. Five projects financed wholly by the Nuffield Foundation but which are closely linked to Schools Council projects are included. There is a fold-out summary chart and a project index. Related documents are ED 058 100 and ED 059 911. (Author/RM)

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SCHOOLS COUNCIL PROJECT PROFILES AND INDEX

FOREWORD TO THE SECOND EDITION

The curriculum research and development projects on which information is to be found in this binder include all those being sponsored wholly or in part by the Schools Council as at 1st June 1972, and a number due to start in 1973. Space does not permit the inclusion of every small project financed since the Council's inception in 1964, but profiles are given on all projects whose work was finished before June 1972 and which have published reports or material that is now available to the public. Five projects financed wholly by the Nuffield Foundation but which link closely with the work of Schools Council projects have also been included for information.

These profiles are intended as a brief introduction to the work of the Council's research and development projects. There is always a danger in publishing such information that it will quickly become out-of-date and inaccurate, and we have tried to strike a balance between giving a lot of information of a somewhat ephemeral nature on the one hand, and giving sufficient detail of aims, objectives, procedure and materials on the other.

The project profiles have been arranged in the order given in index 1. They have been grouped under twelve broad subject headings: English, Humanities, Languages, Creative Studies, Mathematics, Science, Inter-related studies, Special Education, Welsh, School and Community, School organisation and Resources, and Examinations. Within these groups, projects are arranged according to their reference number and going from primary up to secondary. The first two letters of the reference number represent the subject group, the first two numbers the lowest age of the children for whom the project is intended, and the third and fourth its chronological order. Thus the first humanities project for children aged eight and upward, Social Studies 8–13, is HU 08 01, and Moral Education 8–13, the most recent project in this subject group and age range is HU 08 04.

A complimentary set of the profiles is being sent to all Local Education Authorities, HMIs, teachers' centres, colleges, departments and institutes of education. Additional copies are available from the Schools Council at a cost of 50p (70p including package and postage), (75p overseas), although as the information on them is not copyright there is no objection to sheets being photocopied locally by teachers' centres or schools.

It is intended to update the sheets annually, and any suggestions, corrections or amendments for the next edition should please be sent to Mrs Gillian Box at the Schools Council.

Readers wishing to know more about any research or development project, or wishing to inspect published materials, films or research reports are invited to contact the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL. The Centre is open to visitors each weekday from 10.30 a.m. to 5.00 p.m.

Please note that orders for publications referred to in the profiles should be placed through the usual channels and not sent to the Schools Council.

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JUNE 1972

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PRE-SCHOOL LANGUAGE PROJECT (EN 02 01)

DIRECTOR: Dr Joan Tough

LOCATION: Institute of Education, The University, Leeds LS2 9JT. **Telephone:** Leeds (0532) 31751

DURATION: 1971–1972 **AGE RANGE:** 2–5 **GRANT:** £8,000

AREA OF INQUIRY

The proposal for a feasibility study in this area grew from the work of the Pre-School Education Project (IN 02 01) the director of which, Miss E.M. Parry, had found a growing awareness among nursery school teachers of the importance of language teaching, but hesitation as to the direction it should take and the means it should employ. Dr Tough had already been engaged upon a longitudinal study aimed at testing two hypotheses:

> that differences in the language of children from linguistically 'favoured' and 'unfavoured' home backgrounds can be identified at the age of three;
>
> that the differences that would exist between these children at the ages of five and seven can be reduced by nursery education.

In the course of the research a body of data and experience had been acquired, and this project was therefore established to enable Dr Tough to test the feasibility of using her material as a basis for developing guides to suggest to teachers:

1. how they can become more aware of what features in children's language to listen for, without subjecting the children to formal tests
2. how and when the most profitable listening can be done
3. how children's language development can be recorded.

PROCEDURE

Dr Tough has seen her task as the three-fold one of supplying background knowledge about the ways in which young children use language, examining a small number of situations in which listening and recording may be done effectively, and indicating possible ways of recording the child's use of language.

Dr Tough and her colleagues have been working with a number of teachers' groups, the members of which are using materials developed by the project. These materials include language development appraisal guides, the aim of which is to help the teacher listen carefully to the children's talk with a view to identifying particular skills which have been mastered and the uses to which individuals put their language. By a more specific analysis of children's talking than is usually achieved in the classroom, it is hoped that teachers will be able to build up year by year some information about the development of at least some of the important aspects of individual children's language. As it is the children's own production of language that is to be recorded as well as their understanding, much emphasis is placed on observation and the verbatim recording of what children say.

FINAL PUBLICATION

It is hoped that the study will produce a report which will help teachers of young children in the following ways:

1. by illustrating, with detailed examples, the variety of ways in which young children use language;
2. by suggesting ways in which teachers can observe and record the stages of language development (without formal 'testing');
3. by describing teachers' strategies for stimulating language development and producing a variety of language use.

FURTHER INFORMATION is available from the project director, or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

P/T

LINGUISTICS AND ENGLISH TEACHING: INITIAL LITERACY PROJECT (EN 05 01)

DIRECTOR: **Professor M.A.K. Halliday** (until December 1970)

PROJECT ORGANISER: **D. Mackay** *

LOCATION: Communication Research Centre, Department of General Linguistics, University College, London WC1.

DURATION: 1964–1971 (Schools Council support from 1967) **AGE RANGE:** 5–7 **GRANT:** £156,700 (both projects)

AREA OF INQUIRY

This work began as the Nuffield Programme in Linguistics and English Teaching (1964–1967). Its brief was to look at the relevance of developments in linguistics for the teaching of English language to those for whom English was a mother tongue. When the programme was taken over by the Schools Council the work was carried forward as linked projects, associated within the one programme but aimed at different objectives. One, the Initial Literacy Project, was concerned with the initial teaching of reading and writing. The other, the 'Language in Use' Project, was concerned with pupils throughout the secondary school and beyond (see Linguistics and English Teaching: Language in Use Project).

INITIAL LITERACY PROJECT

This group was concerned with the production of materials and a teachers manual for the teaching of initial reading and writing. These materials have subsequently been published as *Breakthrough to Literacy* and details are given below.

Some of the fundamental beliefs underlying the project's work are that:

1. reading matter for children should, from the beginning, be linked to their own spoken language. The child's neighbourhood dialect may well be the only resource he brings to learning to read and write, and to present him with written language unrelated to his spoken language, is to cut him off from this. The language of most reading books, especially most first books, is very different from the spoken language of children and adults and includes language not found in normal written English
2. the material that children are asked to read should be closely linked to their own interests and experiences and should include forms of imaginative writing. Thus the *Breakthrough* readers stem from the actual stories told by the children in the trial schools
3. the teacher should be an active participant in the child's learning process, constantly offering the child guidance and help. Language, spoken and written, is highly patterned and the more of this patterning the teacher understands, the more effectively will she be able to help children to learn to read and write.

The project does not claim that its work is revolutionary, but rather that it has examined current practices and has attempted to work out why certain procedures are successful and others less so.

The heart of the materials is the 'sentence maker'. This is a folder made up of three leaves, two of which have a printed anticipated vocabulary (with a card insert for each); the third set is blank to enable personal items, available to the child, to be included. By using this, the child is able to master the composition and the reading of sentences without first having to master hand writing and spelling. He is thus able to practise and experiment with the written language as he does with the spoken.

Spelling is dealt with by means of a similar but smaller piece of apparatus called the 'word maker'. This is a folder containing printed symbols which the child can arrange to form words.

The project team do not state in the teacher's manual how long the work should take a child, nor at what age children should start, as the materials are intended to be used individually by children working at their own pace.

The trial materials, although primarily intended for use with 5–7 year-old children in normal reception classes, have been used successfully in remedial situations with junior and lower secondary children, with a group of partially-hearing children, with junior E.S.N. children, with children in a training centre, and with adult illiterates.

All the materials have been tested by some 4,000 children in 80 schools and revised in the light of comments from teachers and children.

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MATERIALS

Publisher: Longman Group Limited, Pinnacles, Harlow, Essex, from whom inspection copies are available. Publication from 1970. Orders should be placed with the school supplier or a retail bookseller. Prices given below are correct at time of going to press.

Teacher's Materials

Teacher's sentence maker, stand, printed and blank word inserts	£3.75
Teacher's sentence maker blank leaf	£1.15
Teacher's magnet board kit: magnet board, magnets & figurines	£4.81 (inc. p. tax)
Teacher's manual	£1.25

Extras

Replacement Teacher's Sentence maker inserts	£1.00
Replacement Teacher's Sentence maker blank insert cards	35p
Extra Teacher's Plastic Stand	25p
Replacement Magnets (sold in tens)	30p
Replacement Figurines	£1.63 (inc. p. tax)

Pupils' Materials

Sentence maker, stand, printed and blank word inserts	43p
Project folder, and blank cards	40p
Stand	10p
Word maker, and insert letters	30p

Extras

Project folder blank cards	10p
Replacement word cards and blanks	13p
Replacement word maker inserts	8p

Breakthrough Books

after school; big and little; the cat, the bird & the tree; a fish book	Yellow Set A	55p
at school; my teacher; a rainy day; the wendy house	Yellow Set B	55p
my mum; I fell over; a cup of tea; things I do	Yellow Set C	55p
The birthday party; Dressing Up; Doctors & Nurses; The loose tooth	Red Set A	55p
In bed; The Christmas tree; Birds; Shopping	Red Set B	55p
The Lost girl; People in Stories; My story; Our Baby	Red Set C	55p

Big Breakthrough Books

An abc for hungry girls and boys	45p the pair limp, or 45p each h.b.
About the house	
Sally go round the sun and other nursery rhymes	80p
24 varnished full colour cards	
Sally go round the sun	
12 inch LP record, containing spoken and sung versions of the rhymes	£2.08 (inc. p. tax)

Since the completion of the project, a number of further readers have been prepared by ex-members of the project team. These include:

Breakthrough Poetry; Lollipops	4 books	90p
Getting married; Old Houses; Tom's accident; Crocodiles are dangerous	Blue Set A	55p
The day we went to the seaside; Fire; The new flats; The football match	Blue Set B	55p.

TRAINING AND DIFFUSION

The teacher's manual is to a large extent self-explanatory. Teachers wishing to know which local schools are using *Breakthrough to Literacy* should contact their local primary school adviser. A 30 frame full colour filmstrip showing the materials in use and accompanied by teaching notes is

[illegible] £1.25

Extras

Replacement Teacher's Sentence maker inserts	£1.00
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EVALUATION

Miss Jessie Reid of the University of Edinburgh, Department of Education, has been engaged since 1969 in an evaluation of *Breakthrough to Literacy,* using the 47 ordinary day schools, a number of ESN schools and a few remedial classes engaged in the initial trial of materials. Children and teachers were interviewed, teacher opinion on the Breakthrough method and materials was sampled and analysed, children's reading ability was tested using the Neale Analysis, and the written work of children using Breakthrough was assessed.

A report of this evaluation will be published by Longman in 1973 entitled *Breakthrough Observed.*

RELEVANT PAPERS

Frances Knowles 'A Breakthrough in initial literacy' *Dialogue* 3, June 1969

AUDIO–VISUAL

Integrated Reading. A five minute clip from Tomorrow's World, March 1970 BBC2, 16mm colour
Breakthrough to Literacy; a filmstrip. A 30 frame, 35mm full colour filmstrip showing the materials in use. Published by Longman at £2.00.

FURTHER INFORMATION

Copies of all items listed above and all published materials are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

*Mr D. Mackay is now director of the Centre for Language in Primary Education, St. Michael's House, 2 Elizabeth Street, London SW1

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JUNE 1972

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i.t.a.: AN INDEPENDENT EVALUATION (EN 05 02)

DIRECTORS: the late **Professor F.W. Warburton** and **Mrs Vera Southgate**

LOCATION: Department of Education, University of Manchester M13 9PL

DURATION: 1965–1968 **AGE RANGE:** 5–8 **GRANT:** £3,600

AREA OF INQUIRY

The Schools Council sponsored the evaluation of the available evidence relevant to the use of the initial teaching alphabet in the teaching of reading in schools at the request of the i.t.a. Foundation. The investigation incorporated the following broad lines of approach:

1. an evaluation of all the published research evidence on i.t.a. at home and abroad, including an appraisal of the methodology behind the results of experiments which had been carried out in both Great Britain and the U.S.A.
2. the collection and evaluation of the views of people who had been closely connected with the use of i.t.a. in such a way that this verbal evidence would represent a swathe cut right through every stratum of people involved in any way
3. suggestions regarding future research projects on i.t.a. which might be considered necessary.

WHAT IS i.t.a.?

The Initial Teaching Alphabet, usually referred to as i.t.a. and originally named the Augmented Roman Alphabet, was devised by Sir James Pitman. He believed that the irregularities of the English spelling system constituted a major cause of difficulty for the beginning reader, and so his alphabet was aimed at simplifying the earliest stages of learning to read. This alphabet is intended only as an initial medium of instruction; once the learner has acquired fluency in reading simple material in i.t.a. he is expected to transfer to reading materials printed in traditional orthography (t.o.).

Pitman's general aim was to produce an alphabet in which each written symbol represented one, and only one, spoken sound. Forty-four written characters are represented, including twenty-four from the traditional alphabet.

The first experiment using i.t.a. with infants began in 1961 under John Downing at the Reading Research Unit, University of London Institute of Education.

RESEARCH PROCEDURE

The results of this investigation are published in *i.t.a.: an independent evaluation;* a shortened paperback version of this report is published as *i.t.a.: what is the evidence?* The former is presented in three sections:

1. a brief inquiry into the extent and use of i.t.a., including information obtained by questionnaire from LEAs in England and Wales
2. evidence from interviews on i.t.a. in practice, including chapters on collecting the evidence, interviewing procedures, infant teachers' general impressions of i.t.a., comments on reading, comments on writing and spelling, and comments on other aspects of i.t.a., evidence from schools involved in experiments, evidence from visitors to schools, parents' evidence, and summary of and conclusion drawn from verbal evidence
3. evidence from research on i.t.a. in practice, including chapters on suggested principles of experimental design, summary of individual researches, summary of research results, and evaluation of and conclusions drawn from research evidence.

CONCLUSIONS

With reference to part 1 above, by 1966, 9% of all schools in England and Wales containing infant pupils were to some extent experimenting with i.t.a. Verbal evidence in part 2 was found to be mainly favourable and frequently extremely favourable. The balance of research evidence in part 3 favoured i.t.a. as an *initial* teaching alphabet.

Both the verbal and the research evidence indicated that in the majority of schools infants using i.t.a. had learned to read earlier, more easily and at a faster rate than similar children using t.o. Verbal and research evidence showed, however, that after about three years of schooling, the reading attainments of many children taught by t.o. are approximately equal to those children taught by i.t.a.

All the research emphasized the complexity of learning to read, and verbal and research evidence pointed to the need for further research into the early stages of learning to read.

The investigation incorporated the following broad lines of approach:

1. an evaluation of all the published research evidence on i.t.a. at home and abroad, including an appraisal of the methodology behind the results of experiments which had been carried out in both Great Britain and the U.S.A.
2. the collection and evaluation of the views of people who had been closely connected with the use of i.t.a. in such a way that this verbal evidence would represent a swathe cut right through every stratum of people involved in any way
3. suggestions regarding future research projects on i.t.a. which might be considered necessary.

WHAT IS i.t.a.?

The Initial Teaching Alphabet, usually referred to as i.t.a. and originally named the Augmented Roman Alphabet, was devised by Sir James Pitman. He believed that the irregularities of the English spelling system constituted a major cause of difficulty for the beginning reader, and so his alphabet was aimed at simplifying the earliest stages of learning to read. This alphabet is intended only as an initial medium of instruction; once the learner has acquired fluency in reading simple material in i.t.a. he is expected to transfer to reading materials printed in traditional orthography (t.o.).

Pitman's general aim was to produce an alphabet in which each written symbol represented one, and only one, spoken sound. Forty-four written characters are represented, including twenty-four from the traditional alphabet.

The first experiment using i.t.a. with infants began in 1961 under John Downing at the Reading Research Unit, University of London Institute of Education.

RESEARCH PROCEDURE

The results of this investigation are published in *i.t.a.: an independent evaluation;* a shortened paperback version of this report is published as *i.t.a.: what is the evidence?* The former is presented in three sections:

1. a brief inquiry into the extent and use of i.t.a., including information obtained by questionnaire from LEAs in England and Wales
2. evidence from interviews on i.t.a. in practice, including chapters on collecting the evidence, interviewing procedures, infant teachers' general impressions of i.t.a., comments on reading, comments on writing and spelling, and comments on other aspects of i.t.a., evidence from schools involved in experiments, evidence from visitors to schools, parents evidence, and summary of and conclusion drawn from verbal evidence
3. evidence from research on i.t.a. in practice, including chapters on suggested principles of experimental design, summary of individual researches, summary of research results, and evaluation of and conclusions drawn from research evidence.

CONCLUSIONS

With reference to part 1 above, by 1966, 9% of all schools in England and Wales containing infant pupils were to some extent experimenting with i.t.a. Verbal evidence in part 2 was found to be mainly favourable and frequently extremely favourable. The balance of research evidence in part 3 favoured i.t.a. as an *initial* teaching alphabet.

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All the research emphasized the complexity of learning to read, and verbal and research evidence pointed to the need for further research into the early stages of learning to read.

RELEVANT PUBLICATIONS

F.W. Warburton and Vera Southgate, *i.t.a.. an independent evaluation,* Murray and Chambers 1969, £4.00.

Vera Southgate, *i.t.a.: what is the evidence?* Murray and Chambers 1970, 45p.

FURTHER INFORMATION

The publications are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

JUNE 1972

T/P/R

ENGLISH FOR IMMIGRANT CHILDREN (EN 05 03)

DIRECTOR: J. Ridge ORGANISER: Miss June Derrick *

LOCATION: Leeds University, Institute of Education, Leeds LS2 9JT. **Telephone:** Leeds (0532) 31751

DURATION: 1966–1971 AGE RANGE: 5–16 GRANT: £135,250

AREA OF INQUIRY

In 1963 the School of English at the University of Leeds put to the Schools Council a proposal to provide practical help to schools admitting a large number of immigrant children with language difficulties.

A preliminary inquiry was set up:

1. to inquire into the extent to which local education authorities were aware of the factors involved and
2. to establish the size of the immigrant intake in local authority schools.

The findings of this feasibility study are published in Schools Council Working Paper 13: *English for the Children of Immigrants.*

The survey provided ample evidence that development work should be both feasible and welcome, estimating for example that at that time (1965) some 44,000 children were unable to make normal progress in schools because they lacked sufficient English. A project was therefore established to provide teaching materials to help teachers enable pupils, whose first language is not English, to achieve an adequate command of English, so that they can play as full a part as possible in school and society.

PROCEDURE

The project has developed materials in four main areas, together with a series of Handbooks dealing with some general aspects of immigrant education. Details of these are given in the following section.

MATERIALS

Publisher: Books for Schools Limited, a consortium of six publishers, from 1969. All materials are produced and distributed on behalf of the consortium, by the Longman Group Limited, Pinnacles, Harlow, Essex from whom inspection copies are available. Orders should be placed with the school supplier or a retail bookseller. Prices given below are correct at time of going to press.

Scope: Stage 1
An Introductory English course for pupils 8–13 years (published 1969).

On the assumption that it is first essential to teach children to speak, this course aims to help teachers give their pupils a sound elementary knowledge of spoken English, and then to start them reading and writing English. The materials are designed to help children become familiar with everyday aspects of English life as well as with a general school curriculum, and the course is structured upon the language children use and situations with which they are familiar.

The course is built around fourteen topics, and reference is made throughout to a group of children and their families who live in King Street, a multi-racial, urban area.

The materials include cut-out figures for use on magnet boards to help children recognise and talk about familiar objects and situations, and these are a versatile teaching aid for many kinds of language practice. The key to the course is in the teacher's book; this shows how the various components of the course relate to one another, and gives a detailed language scheme in which emphasis is placed on the structural patterns of English. Sections are also included on story telling, and on the initial teaching of reading and writing. Pre-reading apparatus, flash cards, work cards, work books etc. are included in the course and link with the *Scope* Readers. The language of the reading material is based on the scheme of oral work.

It is thought that most children will need at least two terms to master the language in the course, but as the time available for teaching non-English-speaking children will vary from school to school, the course has been flexibly designed for use in a variety of teaching situations.

Prices (as at May 1972)

Teachers' Package £26.00
Magnet board, magnets, magnet board figures, 10 wall pictures, 6 flash cards, 4 sets of picture cards, 2 sets of work cards (each containing 24 reading cards and 50 writing cards), 5 sheets of word slips, 1 sheet alphabet cards, 1 7" record.

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Prices (as at May 1972)

Teachers' Package £26.00

Magnet board, magnets, magnet board figures, 10 wall pictures, 6 flash cards, 4 sets of picture cards, 2 sets of work cards (each containing 24 reading cards and 50 writing cards), 5 sheets of word slips, 1 sheet alphabet cards, 1 7" record.

Teacher's Book	£3.00
Pupil's Picture Book	£0.30
Pupil's Work Book	£0.24
Eight Readers	£1.40 per set.

N.B. The following items from the Teacher's Package are available separately:

Work Cards	£1.40
Word Slips	£0.50
Picture Cards	£0.40

Scope: Stage 2
A language development course for children aged 8–13 at a second stage of language learning. (Published 1972).

The materials are based on the study of three themes, 'Homes', 'Water' and 'Travel' and consist of a teacher's book, separate pupils' books and a set of work cards (to be published in 1973) for each theme. Emphasis is laid on developing children's skill in using language for learning, thinking and communicating. The themes are the starting point for the children's work, and the materials are designed to provide special support for children from non-English-speaking backgrounds in their specific language needs.

The teacher's book is an essential guide to the course. It gives detailed suggestions for the use of the pupils' books and work cards; it lists language and vocabulary; it provides guidance in language-teaching techniques for use in the context of general class teaching; and it helps with class organisation where levels of ability and language development vary considerably.

Prices (as at May 1972)

Homes	60p
Water	60p
Travel	60p

Work Cards (for each of the three themes there are 18 cards, graded in terms of linguistic difficulty into 3 sets of 6).

Word Cards for Homes	per set of 18	1973
Work Cards for Water	per set of 18	1973
Work Cards for Travel	per set of 18	1973
Teacher's Book		£2.00

Scope Senior Course

Designed to help meet the needs of recently-arrived non-English-speaking immigrant students aged 14 or over, and leading to the specific problems of leaving school and gaining employment. (Published 1972).

At trial stage, these materials were used in secondary schools, colleges of further education, evening institutes and adult groups. The interests and social needs of the students have been borne in mind and the materials comprise 2 teacher's books, 3 pupils' books entitled *We Live in England, Out and About in England* and *Ready for Work*, a work book, wall pictures and two tapes. The third book, which deals with finding jobs and starting work, was written for the project by members of staff at the Pathway F.E. Centre, Ealing LEA.

Prices (as at May 1972)

Students' Book 1: We Live in England	50p
Students' Book 2: Out and About in England	40p
Students' Book 3: Ready for Work	70p
Wall Pictures for Books 1 and 2	50p
Tape 1: Radio Camley	£3.00 (incl. p. tax)
Tape 2	£3.00 (incl. p. tax)
Work Book for Book 3	25p
Teacher's Book for Books 1 and 2	£2.10
Teacher's Book for Book 3	–

Additional Materials
Also in press (to be published in 1973) are:

Scope Storybook by Jenny Taylor and Terry Ingleby. A collection of stories for teachers to tell children aged 5–12 in multi-racial classes.

Scope Supplementary Plays and Dialogues by Doreen Manley. A set of 8 readers for children in the early stages of learning to read, supplementing the *Scope Stage 1* readers.

Infant Section
A report by Mrs Diana Stoker was published by the Schools Council as Working Paper 31: *Immigrant Children in Infant Schools.* Its main theme was that in most cases it is necessary for non-English-speaking immigrant children in infant schools to be given specific help in learning English. If they are left simply to 'pick it up' they may leave the infant school with an inadequate command of language for educational purposes.

This section of the project did not plan to produce materials, but rather a handbook for teachers, suggesting ways in which the language development of immigrant infants may be stimulated and structured in the course of the normal activities in the infant classroom. This will be published in 1973, probably as *Scope Handbook 3,* entitled *Language Work with Infant Immigrant Children.*

Scope Handbooks
Two handbooks for teachers have been written for the project by specialist authors to provide background information on various aspects of teaching English to non-English-speaking immigrant children.

Scope Handbook 1: The Social Background of Immigrant Children from India, Pakistan and Cyprus, by Eric Butterworth and Donald Kinnibrugh 1970, £0.60. This includes information on the cultural background of Indian, Pakistani and Cypriot children, is explicity related to the school situation in Britian and should help teachers responsible for the reception and settling in or these children.

Scope Handbook 2: Pronunciation for non-English-speaking children from India, Pakistan, Cyprus and Italy, by Elizabeth Rudd, 1971, £1.05. This deals with the major features of pronunciation which have to be taught and the techniques of how to teach them. The main difficulties experienced by speakers of other languages are also dealt with, and detailed practice material is included.

EVALUATION

Evaluator: Michael Feeley

All materials were devised in consultation with groups of teachers, and all were tested in trial schools and revised before publication.

The teaching materials and the classroom methods have been assessed in various ways. Teachers in trial schools returned questionnaires to the project on the language scheme, the suggestions for teaching language, the suitability of the visual aids etc. Area meetings of trial teachers were organised, and visits were made to schools using the material.

An account of the evaluation of this project is given in a paper by Michael Feeley, one of twelve contributions to a symposium of evaluation studies to be published in the series 'Schools Council Research Studies' by Macmillan Education in 1973.

TRAINING AND DIFFUSION

The project has prepared two films about the *Scope* materials and a tape-slide kit is also available for teacher trainers. Details of the availability of these are available from the Schools Council Project Information Centre.

RELEVANT PAPERS AND PUBLICATIONS

Development of Project

Schools Council *English for the Children of Immigrants* (Working Paper 13), HMSO 1967, 17½p
J. Power *Immigrants in School* Councils and Education Press Ltd. 1967 (A collection of articles which originally appeared in *Education,* December 1966. This gives a survey of administrative policies and is a most useful critique and commentary on Schools Council Working Paper 13).
N. Fitchett 'Children who don't speak English' *Dialogue* 1, September 1968
M.R. Feeley 'The Schools Council Project in English for Immigrant Children' *Institute of Race Relations Newsletter,* February 1969.
J. Derrick 'The Schools Council Project in English for Immigrant Children' *Race,* Vol 10 April 1969
E.J.B. Rose and associates *Colour and Citizenship* (The Rose Report), OUP for The Institute of Race Relations, 1969 (see pages 278–293 for an assessment of 'The Leeds Project')
June Derrick 'The end of a project' *Dialogue* 10, Spring 1972.

Infant Immigrant Children

Schools Council *Immigrant Children in Infant Schools* (Working Paper 31) Evans/Methuen Educational, 1970 31p

Linda Lambert and associates 'Immigrant Children in Infant Schools, 1–4;' *Child Education* October 1970, November 1970, January 1971, March 1971.

Language teaching related to the project's aims and materials

J. Derrick 'The Education of Immigrant Children' *Child Education*, April 1968

Hilary Hester 'The Education of Immigrant Children – Teaching the English Language' *Child Education*, May 1968

Diana Stoker 'The Education of Immigrant Children – Reading' *Child Education*, June 1968

Elizabeth Rudd 'The Education of Immigrant Children – Pronunciation' *Child Education*, July 1968

Josie Levine 'Draw – Talk – Write' *English for Immigrants* No. 1 Summer 1967; 'Imitative Writing' *English for Immigrants* No 2, Spring 1968; 'The Development of Written Skills 1' *English for Immigrants* Vol 2 No 2, Spring 1969; 'The Development of Written Skills 2' *English for Immigrants* Vol 2 No 3, Summer 1969)
(These are collected in one volume, ATEPO Booklet No 2, *Developing Writing Skills).*

Hilary Hester 'Stories in Language Teaching' *English for Immigrants* Vol 3 No 1, Autumn 1969

Hilary Hester 'Scope Stage 2: Thematic Teaching' *English for Immigrants* Vol 3 No 3, Summer 1970

Josie Levine 'Developing Use of English at a Second Stage of Language Learning' *Remedial Education* October 1970

BBC School Broadcast Bulletin *Hello! Hello!*, School Broadcasting Council for the U.K., November 1970. An account of how the BBC material (see below) was developed in close co-operation with the project.

Most issues of *Multiracial School* include articles relevant of this area. Published by OUP, 3 times yearly, £1.00. The Journal of the Associationsfor the Education of Pupils Overseas.

Audio-Visual

'Hello! Hello!' A radio series for immigrant children of 8–11 learning English as a second language. Transmitted during 1970. 10 tapes of the broadcasts and a copy of the teacher's notes may be bought from BBC Publications, 35 Marylebone High Street, London W1M 4AA for £9.89

'Hello Again' A second radio series for immigrant children of 8–11. Spring Term 1971.

A new skill. An 8 minute 16mm black and white BBC film, made in 1968, and part of a series entitled *In our Midst.*

Two further films are in preparation and should be ready later in 1972. *Talking in Class* is filmed in an immigrant reception class and looks at the attitudes and organisation conducive to successful language work. The second film is intended as an introduction to *Scope Stage 1.*

A tape-slide sequence showing *Scope Stage 1* in use.

FURTHER INFORMATION

Copies of all articles listed above including films and tapes, and all published material, are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

*Miss Derrick is now Senior Lecturer in the Language Centre at York University.

R

REVIEW OF POST–WAR RESEARCH AND EXPERIMENTS IN METHOD IN THE TEACHING OF READING (EN 05 04)

DIRECTOR: Mrs Pat D'Arcy *

LOCATION: Institute of Education, University of London, Malet Street, London WC1

DURATION: 1967–1970 **AGE RANGE:** 5–18 **GRANT:** £2,600

AREA OF INQUIRY

This project was originally established to review the whole field of research and experiment in English teaching since the war. This, however, was not possible in the time available and Mrs D'Arcy therefore concentrated on the area of reading, taking into account the reading responses of children from the pre-school to the post-sixth form stage, and the methods by which reading is taught in infant, primary and secondary schools.

FINAL PUBLICATION

Publisher: Hutchinson Educational, 3 Fitzroy Square, London W1. 1973.

The survey, entitled *Reading for Meaning* is divided into two main sections:

1a *The pre-reading period:* including the function of books for the pre-school child; the 'world inside' (the function of phantasy in stories for under fives); the 'world outside' (recognising the the familiar and exploring the unfamiliar); patterns of listening response; the need for the more research

b *Reading readiness:* including possible origins of the concept; a summary of factors which appear to be involved; recent reservations about the reading readiness concept and the importance of intervention; a summary of the issues involved

c *Factors in learning to read:* outlining the problems exposed by research and describing the results of research which has focused on the teacher, on school conditions, and on the child

d *Teaching children to read – decoding methods:* synthetic methods; analytic methods

e *Teaching children to read – teaching devices:* initial teaching alphabet; Diacritical Marking System; comparison of D.M.S., i.t.a. and t.o.; colour, audio-visual aids

f *Teaching children to read – reading schemes:* reading schemes based on primers, and alternative schemes; a literacy programme for young children

g *Planning a reading programme*

h *Teachers' discussion*

2a *Aims and attitudes towards the teaching of literature*

b *What do children read from preference?:* summarises the results of research into what children read, what they like to read, factors affecting their choice, the interest of children in books, magazine and newspaper reading

c *The analysis and assessment of reading response:* what is involved for the writer as well as for the reader

d *Techniques for the analysis and assessment of comprehension*

e *Techniques for the analysis and assessment of 'literary appreciation'*

f *Techniques for the analysis and assessment of response to novels and short stories*

g *Reading response* – causes of misunderstanding: practical criticism; investigations into reading difficulties; the attitude of the teacher; the demand for an explicit response; reading for meaning – some positive suggestions and questions.

Detailed accounts of much of the research outlined in the text appear in the appendices.

RELEVANT PAPERS AND PUBLICATIONS

As the survey was intended to inform teachers about the range of books and published research articles available on various aspects of teaching reading, the report contains an extensive bibliography.

FURTHER INFORMATION

A copy of the report when published will be available for reference in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

*Mrs D'Arcy is no longer at the London Institute.

JUNE 1972

R

CHILDREN AS READERS (EN 05 05)

DIRECTOR: **D. Barnes** (until July 1970)
J. Mulford (since August 1970)

LOCATION: School of Education, University of Bristol, 19 Berkeley Square, Bristol BS8 1HF
Telephone: Bristol (0272) 24161 ext. 239.

DURATION: 1968–1973 **AGE RANGE:** 5–18 **GRANT:** £16,309

AREA OF INQUIRY

The project was set up in collaboration with the National Association of Teachers of English with the aim of involving as many teachers as possible in the consideration of the role of literature in the curriculum, by setting up study groups to consider the teaching of literature in both primary and secondary schools.

PROCEDURE

The project is organised by a voluntary panel and a full-time director. The project now has some 50 groups of teachers, who work in their spare time. Each group is responsible for determining the nature of its own study – the function of the central panel being to advise and co-ordinate. In an introductory pamphlet *Children as Readers,* put out by the project in 1968, it was suggested that groups should work towards producing some combination of a) collections of material, b) theoretical statements; c) practical advice; d) reports of experimental studies. An appendix to this bulletin also suggested areas for study, including the choices, attitudes and responses of the child in situations where the influence of the teacher is minimal; the role of the teacher in the classroom; the behaviour and attitudes of the teacher; special areas of literature, such as drama. Groups have proceeded in a variety of ways: members may read papers, record lessons in which different teachers in different classes have taught the same poem, discuss approaches to a novel. Several groups have devised ways of collaborating with parents. An increasing concern of groups and individuals associated with the project has been with the analysis of children's response, especially in talk without an adult present, to poetry and fiction.

DIFFUISON AND TRAINING

Two week-end courses to train potential group-leaders were held in the first year. Since then, a number of regional conferences for group representatives have been organised by panel members. Information on further meetings and conferences may be obtained from the project.

FINAL REPORT

It is hoped that this project will eventually publish a report which will not only include detailed accounts of the studies of some participating groups, but will consider the successes and failures of *Children as Readers* as one model of teacher-generated curriculum development.

RELEVANT PAPERS AND PUBLICATIONS

Children as Readers 1968. Obtainable from the project
Literature and out of the Classroom. Out of print
Bulletins are distributed to participating teachers. Nos 1–6 are out of print. Copies of 7 and 8 are available from the project
Douglas Barnes 'The Roles of Literature in the Curriculum of the Primary and the Secondary School' *English in Education,* Vol 2 No 1
Martyn Richards 'Children as Readers' *The School Librarian* Vol 17 No 3, September 1969.

The subject of *English in Education* Vol 5 No 3 Winter 1971 is 'Reading', and a number of contributions are from teachers associated with Children as Readers Project. For an example of a group report see 'Group Talk and Literary Response' by Douglas Barnes, Peter Churley and Christopher Thompson.

FURTHER INFORMATION is available from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

8

R

LANGUAGE DEVELOPMENT IN THE PRIMARY SCHOOL (EN 05 06)

DIRECTOR: Mrs Connie Rosen *

LOCATION: Goldsmiths College, University of London, New Cross, London SE14

DURATION: 1969–1971 **AGE RANGE:** 5–11 **GRANT:** £11,500

AREA OF INQUIRY

This project was established:

1. to collect examples of good practice which would show the range of language actually used by children aged from 5 to 11 years
2. to disseminate the materials collected in such a way that local groups of teachers could study their use with a view to possible experiment and developments in their own situations.

PROCEDURE

Mrs Rosen has visited many schools in England and Northern Ireland in a wide variety of areas - rural and urban, working-class and middle-class. She has talked to headteachers, to class-teachers and to children, and collected examples of children talking, listening, reading and writing, in written form and on tape. Several schools were visited on a number of occasions to chart children's progress and pattern of work through a school year.

During the course of the project, three discussion documents were produced containing examples of children's linguistic responses to situations such as country walks, a train journey, looking at paintings, hearing a poem, and examples of work done by children on their own. These documents were distributed to all teachers' centres and stimulated an enthusiastic response.

PUBLICATION

Publisher: Penguin Books, Harmondsworth, Middlesex, early in 1973.

The final report, which covers the whole field of language development in the primary school, has been written jointly by Connie Rosen and her husband Dr Harold Rosen. Included in it are a substantial number of examples of children's written and spoken language, set in as detailed a context as possible, and discussed in such a way as to show why each example has been selected, what it is illustrating and why it is thought to be significant. Sections in the report include the context of the school situation, children talking, writing, some comments on learning to read and the search for drama.

RELEVANT PAPERS AND PUBLICATIONS

Schools Council *English: a programme for research and development in English Teaching* (Working Paper 3), HMSO 1965

Connie Rosen 'The Primary Teacher's Role is Vital' *Times Educational Supplement*, 7th July 1972.

FURTHER INFORMATION

The report, when published, will be available for reference in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

*Mrs Rosen is now at Trent Park College, Cockfosters, near Barnet, Hertfordshire.

JUNE 1972

T/P/R

TEACHING ENGLISH TO WEST INDIAN CHILDREN (EN 07 01)

DIRECTOR: J. Wight * (1967-1972)
F.J. Worsley (1972-1973)

LOCATION: Department of English and School of Education, The University, P.O. Box 363, Birmingham B15 2TT **Telephone:** 021-472 1301 Ext. 1054

DURATION: 1967–1973 **AGE RANGE:** 7–9 **GRANT:** £55,000

AREA OF INQUIRY

Although the Council established an earlier 'immigrant' project at Leeds in 1966 to develop materials to teach English to the children of non-English speaking immigrants, the problems of West Indian children are substantially different in that their native language is English. This project was therefore set up in 1967, initially to conduct research into the linguistic, social and emotional problems of West Indian children and to establish guidelines for the development of materials.

A report on the initial research programme has subsequently been published as Schools Council Working Paper 29 *Teaching English to West Indian Children.*

As a result of the initial research programme and the subsequent pilot development of teaching materials the following general conclusions were reached:

1. the materials should be for the lower junior age-range (7-9 years)
2. children born of West Indian parents in this country have language problems in school identical with those of children born in the Caribbean. Moreover nearly all the crucial language learning difficulties which both these groups of West Indian children have to contend with are precisely those which hold back the educational achievement of native English children in inner city schools
3. for this reason the teaching materials should be designed for use with the whole class (not for segrated groups of West Indian children). By extension they should be suitable for use in a range of classes, not solely those containing West Indian children
4. there is one set of linguistic difficulties which are special to West Indian children. Many, though by no means all, West Indian children speak at home a Creole dialect of English, the nature of which is often not fully understood or appreciated in school. This home dialect creates language problems for a considerable number of West Indian children and interferes with the school's judgement of their abilities.

MATERIALS

Publisher: E.J. Arnold & Son Ltd., Butterley Street, Leeds LS10 1AX from whom sample materials are available. Publication from September 1972. Prices given below are correct at time of going to press.

The materials will be published as *Concept 7-9,* a course in language and reasoning for children aged seven to nine. This is in four parts;

Unit 1: Listening with Understanding
The aim of this unit is to increase the children's skills of oral comprehension and is based upon individual work with a graded series of cassette tapes. It concentrates on memory, confidence and control, attentiveness and concentration, decoding complex language, and deduction. The language is organised around six themes: Position, What does it mean? What happens if? Comparison, The reason why, and Time. The language becomes more difficult and complex by stages, but the responses required by the child stay simple.

The core of the material is pre-recorded cassettes/Packettes, but a specimen workbook, spirit duplicator masters, prompt answer cards, and teacher's manual are also included.

Unit 2: Concept Building
The whole class or groups of children can be involved together in the work of this unit, which aims to increase the children's skill and flexibility in classifying data. It focuses on the perception of similarity and difference, essential attributes, conceptual sets, and the language of classification.

Central to the materials are matrix cards and a matrix builder; also included are activity books, magnet cards, missing picture books, and a teacher's manual.

Unit 3: Communication
The aim of this unit is to increase the children's oral skills of description and inquiry. There are some introductory class activities, but the bulk of the work is with pairs or small groups of children. It focuses on selection of relevant detail, explicitness, sensitivity to audience, linguistic flexibility, confidence and control.

Materials include symbol drawing books, map drawing books, 'where next?' map and route books, picture books, detective inquiry books and a teacher's manual.

The Dialect Kit
The kit has been designed to counter the major effects of West Indian Creole dialects on the writing of standard English. It concentrates on certain features of standard English which present continuing difficulty to Creole speakers, such as plurals, subject verb agreement, and past tenses. The kit includes a short test to identify those children who need to use it.

The materials consist of a test book; a set of 'Right for Writing' books; flashcards; sentence cards; magnet cards and a teacher's manual.

Approximate prices:	*Units 1, 2 and 3 inclusive:*	£27.50
	The Dialect Kit	£12.50

EVALUATION

Evaluator: R.A. Norris

All the materials have been tested in two classes in each of thirty schools in different parts of the country and revised in the light of these trials. Fourteen schools have used the materials as associate schools.

The evaluator has been concerned with the collection of information from teachers about the effectiveness of the materials, the appropriateness of the initial objectives and some preliminary investigations into how the materials have their effect.

DIFFUSION

During the summer of 1972 the project was concerned with the dissemination of information nationally. The final phase during 1973 will be concerned exclusively with after-care; particular attention being given to maintaining the high level of interest in many local authorities and colleges of education. A tape slide programme and a 30-minute film on 16mm or video tape showing the materials in use will be available from September 1972. Details relating to the hire of these items can be obtained from the project or the Schools Council Project Information Centre.

RELEVANT PAPERS AND PUBLICATIONS

J. Wight 'Language Deprivation and Remedial Teaching Techniques' Second International Congress of Applied Linguistics, 1969.

J. Wight 'Research and Development' *English for Immigrants,* OUP, Vol 2, Spring 1969.

J. Wight 'Linguistic and Non-Linguistic Teaching Objectives *English for Immigrants,* OUP, Vol 2, Spring 1969.

P. Edson and R.A. Norris 'West Indian Children' *Practical Suggestions for teachers of immigrant Children,* Community Relations Commission, 1970.

'Questions about the West Indian Project. *Dialogue* 5, February 1970.

Schools Council *Teaching English to West Indian Children* (Working Paper 29), Evans/Methuen Educational 1970, 38p.

J. Wight 'Dialect in School' *Educational Review,* Vol 23, No 3, June 1971

R.A. Norris 'Developing a Curriculum in English for West Indian Children' *Urban Education,* SAGA Publications, Calif.

R.A. Norris 'Language Through Description' *English for Immigrants,* Vol 4, No 3, Summer 1971.

R.A. Norris 'Language Through Enquiry' *Multiracial School,* Vol I, No 1, Autumn 1971.

R.A. Norris 'Helping Children Understand' *Multiracial School,* Vol 1, No 2, Spring 1972.

FURTHER INFORMATION

All publications listed above and copies of all published materials are available for reference only in the Schools Council Project Information Centre.

Further information is available from Mr. F.J. Worsley at the project or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

*Mr J. Wight is now at the Centre for Urban Educational Studies, 34 Aberdeen Park, London N5 2BL

R

EXTENDING BEGINNING READING (EN 07 02)

DIRECTOR: Mrs Vera Southgate Booth

LOCATION: School of Education, The University, Manchester M13 9PL
Telephone: Manchester (061) 273 3333

DURATION: 1973–1976 **AGE RANGE:** 7–9 **GRANT:** £36,300

AREA OF INQUIRY

The aims of the project are as follows:

1. to undertake assessments, intensive observations and records of the working procedures of average children aged 7+ to 9+ in all those school activities which are in any way connected with the development and use of reading and the language arts
2. to assess these procedures against a framework comprising all the skills which make up the total skill of effective reading
3. with the help of practising teachers, to devise and experiment with promising teaching-and-learning strategies for promoting the development of the appropriate reading skills, particularly those which may have been observed to be relatively neglected.

PROCEDURE

As this is to be an intensive rather than an extensive piece of research, carried out in very close collaboration with practising teachers working in normal classroom situations, reading research groups of the teachers concerned, from selected schools within the area training organisation of the School of Education of Manchester University, will meet with the director and the research assistants at regular intervals. At the same time, continuous close contact will be maintained with the selected schools by the researchers working with the teacher members of the research groups in the ongoing task of observing, recording and assessing the work of individual children within the classes of these particular teachers.

FINAL PUBLICATION

The final report will first give detailed accounts of the skills and working procedures of average children aged 7+ to 9+, in so far as these affect the development of reading ability and, secondly, outline experimental techniques which have emerged as practical strategies for improving reading progress. The conclusions and practical suggestions for teachers set out in the report will have implications for helping not only average children aged 7+ to 9+ but also average infants and slower, older children.

FURTHER INFORMATION will be available after September 1973 from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

N.B. THIS PROJECT WILL NOT START UNTIL SEPTEMBER 1973.

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JUNE 1972

The project was established to help teachers use the environment systematically to provide experiences

R

QUESTION AND RESPONSE BY CHILDREN IN SCHOOL (EN 08 01)

DIRECTOR: Dr W.P. Robinson

LOCATION: Department of Psychology, University of Southampton, Southampton SO9 5NH
Telephone: (0703) 56331

DURATION: 1968–1973 **AGE RANGE:** 8–16 **GRANT:** £20,706

AREA OF INQUIRY

The research inquiry arose from a belief that a considerable number of secondary school children do not show a lively and constructive curiosity about matters taught in school. One consequence of this is that they fail to benefit from the educational opportunities available to them. The project has developed measuring techniques, using them to survey the incidence and type of questioning behaviour of middle and secondary school children and investigating means of stimulating questions among less articulate children. Research has also been undertaken to discover whether curiosity and the ability to articulate questions are related to social class.

PROCEDURE

The research team have examined a number of problems using a combination of laboratory-type experiments, and classroom and extra-curricular situations.

1. Does the posing of questions facilitate learning and retention? The final report will include a section on principles governing the structure of lessons in general and textbooks in particular.
2. The capability of children to ask questions relevant to the problem in hand is being examined in an attempt to specify which children have difficulty with what kind of question.
3. To be able to ask a question, does not guarantee it will be asked. Where, under what conditions, of what kind of person is a child prepared to ask different types of question?
4. What is the incidence and type of questions that children typically have? How do these vary according to sex, intelligence, social class and environment?
5. The general determinents of curiosity are being examined.
6. A number of schools and teachers' study groups co-operated in exercises relevant to the development of interest, curiosity and competence in questioning behaviour. These included an evaluation of the effects of a residential course in sporting and outdoor activities and of a residential weekend course on cross-cultural similarities and differences; comparative studies of interaction in teaching situations such as when the teacher is playing an active or passive role, or is absent; an investigation of curiosity about morality in school-based discussion groups; and participant observation in down-town Youth Clubs.

FINAL PUBLICATION

A research report has been prepared for submission to the Schools Council and is likely to be published during 1973.

This includes a review of 'official views' on education and curiosity; theory and evidence on psychology and curiosity including evidence on social class differences with attendant predictions as to likely behaviours of lower working and middle class children; reports of two small scale studies investigating social class differences in approaches to 'finding out' information; the quantity and quality of questions asked; four experiments on incongruity, rated interest and origins of interest, in relation to question asking, comprehension and remembering; three field investigations, two on curiosity changes as a result of attendance at residential courses, one on answers given as a determinant; competence at posing questions; attributes of teachers and others relevant to approaches being made by pupils to ask questions; and a series of experiments to determine whether questions are an aid to learning.

FURTHER INFORMATION is available from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

R

ENGLISH IN THE MIDDLE YEARS OF SCHOOLING (EN 08 02)

DIRECTOR: B. Newsome

LOCATION: Goldsmiths College, University of London, New Cross, London SE14

DURATION: 1970–1972 **AGE RANGE:** 8–13 **GRANT:** £18,000

AREA OF INQUIRY

This project was set up to consider the place of English in the curriculum between the years 8–13, based on a study of promising practice in schools. This has involved investigation of the language opportunities offered to children across the age range, including different reading, writing, dramatic and spoken activities, with some attention to the ways in which opportunities vary with environment, intake and school organisation.

PROCEDURE

During the course of the project the team made intensive studies in a range of primary, middle and secondary schools, from rural and urban areas, working and middle class districts and with differing types of curriculum. Data collected included observation of lesson procedures, examples of written work, tape recordings of oral and dramatic work, and statements by pupils about their curricula.

FINAL REPORT

The report is intended for teachers, administrators, curriculum planners and research workers and will be submitted to the Schools Council late in 1972. It should be available during 1973. It will include:

1. introduction: a general discussion of the role language plays in learning, which sets the tone for the report as a whole
2. the presentation of a selection of specific learning contexts which represent some of the best of what has been seen in schools and which covers a wide variety of learning situations in the 8–13 age group. They range from the broad-based topic work typical of primary school practice, to English as a specialism or as part of an integrated programme at secondary level
3. a consideration of the role of the spoken language in a child's learning. The discussion revolves around a number of interrelated concerns, including the contexts in which talk arises, and the nature of the tasks the children are engaged in. Special attention is given to spoken interaction in the classroom, and to the role speech plays in improvised drama
4. a consideration of the role of the written language in a child's learning. The discussion deals with the nature of the written language, and examines in some detail the development of writing abilities. Controversial issues, such as the nature of 'creative' writing, find a place. Attention is also given to the reading programme in the middle years
5. a consideration of current theories concerned with language and experience. The discussion has a broader sweep than the more detailed sections, and serves as a theorectical framework for the report. The section culminates in the attempt to consider continuity in the language curriculum for the middle years of schooling
6. a consideration of the curriculum implications arising from sections 1–5. Present methods of organisation are discussed, and some proposals are made concerning the organisational requirements for implementing good practice.

RELEVANT PAPERS

B. Newsome 'The Nature of English, and the Strategies and Priorities within it' *English in Australia*, No 19, February 1972

FURTHER INFORMATION is available from Mrs M Mallett, 18A Fairfield Road, Petts Wood, Orpington, Kent or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

CHILDREN'S READING HABITS (EN 10 01)

DIRECTOR: F.S. Whitehead

LOCATION: Institute of Education, The University, Sheffield S10 2TN
Telephone: Sheffield (0742) 26187

DURATION: 1969–1973 **AGE RANGE:** 10–16 **GRANT:** £21,000

AREA OF INQUIRY

The aims of the research are:

1. to investigate the amount of reading done by boys and girls of 10 to 16, and its nature in terms of different kinds of materials
2. to investigate the reading preference of boys and girls and the ways in which these change at different ages
3. to explore the qualities inherent in the most popular books which lead children to prefer them
4. to explore the relationship between the amount and quality of children's reading and various environmental factors in school and home.

No large scale investigation of children's reading habits has been undertaken since A.J. Jenkinson's report in 1940 entitled *What do Boys and Girls Read?*

PROCEDURE

After a preliminary review of previous research in this field, the project team has been concerned with devising a written questionnaire which was administered in March 1971 to some 8,000 10 year-olds, 12 year-olds and 14 year-olds in a stratified national sample of 193 primary and 188 secondary schools. An additional questionnaire was sent to primary school headteachers and secondary school heads of English departments asking for specified information about library provision and about the part played by literature and reading in the English syllabus. A pilot survey was carried out in Spring 1970 with 450 children to improve the questionnaire. The central part of the questionnaire asked the child to list the books he has chosen to read during the previous four weeks, from where he had obtained them and how much he enjoyed them. The questionnaire responses were coded during Summer 1971 for analysis by the Chiiton Atlas computer.

During the school year 1971–1972 the research team conducted follow-up interviews with approximately 10% of the sample to study in greater depth why children choose or prefer their books, what factors influence the amount and quality of their reading, and how children view the role of reading in their own lives.

FINAL PUBLICATION

A research report will be prepared in due course for submission to the Schools Council.

RELEVANT PUBLICATIONS

Schools Council *English – a programme for research and development in English teaching* (Working Paper 3), HMSO 1965 17½p

Alan Wellings 'Research into Children's Reading Habits' *Children's Literature in Education* 6, November 1971.

FURTHER INFORMATION is available from the project director, or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

R

THE EFFECTIVE USE OF READING (EN 10 02)

DIRECTOR: **Professor E.A. Lunzer**

LOCATION: School of Education, University of Nottingham, University Park, Nottingham N67 2RD. **Telephone:** Nottingham (0602) 56101

DURATION: 1973–1976 **AGE RANGE:** 10–14 **GRANT:** £30,000

AREA OF INQUIRY

The aim of the project is to study:

1. what reading demands are made of pupils by teachers, more particularly with pupils' written work in mind
2. what teachers expect pupils to gain in the course of such reading (whether in literacy subjects or in general subjects or in general subject work)
3. what pupils in fact gain from such reading
4. the reasons for the discrepancies which will almost certainly appear between these two
5. the effectiveness of existing 'study skills' programmes, and the nature of possible indications for their improvement
6. variations in reading materials and their appropriateness to the teacher's expectations
7. an analysis of written response to reading.

PROCEDURE

The project will centre on pupils in the last year of the primary school and in the first and fourth years of the secondary. The first two age groups have been chosen to study the new demands that are made on transition to the secondary school, and the way pupils respond to these.. The fourth year of secondary school is of particular interest since pupils in this year are either completing their education or beginning to prepare for public examinations. Research will be conducted in 4–6 schools. Schools used in the main study will be taken from the Nottingham area. Alongside the inquiry to be carried out by the project team a permanent study group of interested teachers will be set up. This group will meet at regular intervals to discuss experiences which might be fed into the project, to discuss and evaluate the findings of the project as it develops, and to exchange ideas for implementation both in their own schools and in the project schools.

FINAL PUBLICATION

A final report will be prepared in due course. In addition, papers will be produced for journal publication covering specific aspects of the work. The main publication will be addressed to teachers and will include some theoretical orientation, as well as case material and suggestions for action.

FURTHER INFORMATION will be available after April 1973 from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

N.B. THIS PROJECT WILL NOT START UNTIL APRIL 1973.

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JUNE 1972

T/R

LINGUISTICS AND ENGLISH TEACHING: LANGUAGE IN USE PROJECT (EN 11 01)

DIRECTOR: **Professor M.A.K. Halliday** (until December 1970)
P. Doughty (from January 1971). *

LOCATION: Communications Research Centre, Department of General Linguistics, University College, London WC1.

DURATION: 1964–1971 (Schools Council support from 1967) **AGE RANGE:** 11–18+
GRANT: £156,000 (both projects).

AREA OF INQUIRY

This work began as the Nuffield Programme in Linguistics and English Teaching (1964–1967). Its brief was to look at the relevance of developments in linguistics for the teaching of the English language to those for whom English was a mother tongue. When the programme was taken over by Schools Council, the work was carried forward as linked projects, associated within the one programme but aimed at different objectives. One was concerned with the initial teaching of reading and writing, and was directed by David Mackay. Its work has been published as *Breakthrough to Literacy* (see information sheet EN 05 01 Linguistics and English Teaching: Initial Literacy Project for fuller details). The other, *Language in Use*, was concerned initially with older secondary pupils, but in the course of development the materials proved that they were suitable for use throughout the secondary school and beyond.

THE LANGUAGE IN USE PROJECT

The Language in Use Project provides an approach to English language which puts into the hands of teachers a way of exploring language that does not require of them, or their pupils, the use of unfamiliar analytical procedures or technical terms. What is offered, however, does embody an objective and coherent view of the nature and function of language and its role in human existence that derives ultimately from the scientific study of language.

It offers a range of topics drawn from every aspect of language in use and presents each topic in the form of a plan for a sequence of lessons, usable individually or as part of a course of study which the teacher himself composes. Each topic is directed towards two basic goals: an increase in the student's awareness of the nature and function of language through the exploration of some aspect of language in use and a development of his ability to handle both spoken and written English. The sequence of activities recommended for the exploration of each topic enables the pupil to work in such a way that the exploration itself leads the way to a recognisable growth in competence.

In the field trials, the units were used with every age group from 10 to 18, and also with students in colleges of education and further education. This was possible because they are written as outlines for the teacher from which he can derive lessons that fit the particular needs of his own classroom. While they make concrete suggestions about what can be done, they do not prescribe the degree of explicit comment to be required of the pupil.

Language in Use is designed to fit into many different patterns of work. It offers an approach to one key aspect of English, but it is not in any sense a 'complete English course'. It can be used as a store of good ideas and good practice that can be drawn upon when and where the work of a class makes it desirable, or it can provide the basis for a planned course in exploring language. A particular feature of the material is the degree to which it makes the use of classroom procedures, like the use of group work, that are familiar to experienced teachers, but present problems for the inexperienced.

MATERIALS

Publisher: Edward Arnold, 41 Maddox Street, London W1R OAN, from 1971. Prices given below are correct at time of going to press

Language in Use £1.70

A looseleaf ring binder, holding a number of single sheets, each one carrying the text of a unit. There are 110 units, each of which provides an outline for a sequence of lessons of between three and five in number. There are ten themes: Part I, 'The nature and function of language', contains two pairs of related themes, 'Using language to convey information' and 'Using language expressively', which together are concerned with conveying the message: 'Sound and symbol' and 'Pattern in language'. Part II, 'Language and individual man' contains three themes, 'Language and reality', 'Language and culture' and 'Language and experience'. Part III, 'Language and social man' again contains three themes, 'Language in individual relationships', 'Language in social relationships' and 'Language in social organisations'.

Exploring Language 90p

A collection of papers by members of the project team intended for teachers and others interested in this subject as an account of how human beings 'use language to live'.

Language in Use Tape £3.50 (incl. p. tax)

Intended to form the basis of a teacher's own collection of spoken material. Some parts relate to particular units, whilst others are usable with several.

EXAMINATIONS

Language in Use is not directed towards preparation for public examinations in any formal sense. All the activities involved, however, have a cumulative effect upon the capacity of the pupil to carry out the specific language tasks required by existing examinations in English language. The flexible design of the material and the degree of initiative left to the teacher, makes it particularly suitable as a basis for CSE Mode II courses.

TRAINING AND DIFFUSION

Language in Use is designed to be its own instructor. It is written with the minimum use of technical terms and what is needed to explain the relevance of a theme to the whole or the specific purpose of a unit is written into the text.

EVALUATION

Evaluator: John Pearce

Formative evaluation was undertaken through the use of questionnaires, visits and observation by the team, and the detailed reports of the co-ordinators. Schools and colleges testing materials included selective, comprehensive, and secondary modern; city centre, suburban, new town, and rural. A number of approved schools were also included.

An account of the evaluation of this project is given in a paper by John Pearce, one of twelve contributions to a symposium of evaluation studies to be published in the series 'Schools Council Research Studies' by Macmillan Education in 1973.

RELEVANT PAPERS AND PUBLICATIONS

Three papers from a series of ten entitled *Programme in Linguistics and English Teaching*, Longman, Green, and Company, 1968:

1. P.S. Doughty *The Relevance of Linguistics for the Teaching of English* 50p
4. P.S. Doughty *Current Attitudes to Written English and their implications for the Teacher of English* 30p
5. P.S. Doughty *Linguistics and the Teaching of Literature* 50p

A second series will be published by Longman from 1972, and four papers by Peter Doughty and Geoffrey Thornton will take further some of the topics in *Exploring Language*.

Peter Doughty 'Pupils also use language to live: a defence of a linguistic approach to language study for the classroom', *English in Education*, Spring 1972.

FURTHER INFORMATION

Published materials and papers listed above are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

* Mr Doughty is now Senior Lecturer in English at Manchester College of Education, Long Millgate, Manchester M3 1SD.

R

WRITTEN LANGUAGE OF 11–18 YEAR OLDS (EN 11 02)

DIRECTOR: **Professor J.N. Britton ***

LOCATION: Institute of Education, University of London, Malet Street, London WC1
Telephone: 01-636 1500

DURATION: 1966–1971 **AGE RANGE:** 11–18 **GRANT:** £33,517

AREA OF INQUIRY

The purpose of this development study has been to discover the nature of the various kinds of writing that teachers' assignments elicit, how these relate to subjects of the curriculum, and how individual patterns of development are established. The research has also attempted to discover what part writing plays in the learning process, in whatever form or in whatever area of the curriculum it occurs.

PROCEDURE

Stage 1 of the project entailed the study of the written work of 500 boys and girls in all the major subjects of the curriculum. The sample covered the full range of ability within the ages 11 to 18, and was drawn from 65 schools throughout England. Stage 2 was a four year follow-up study of the written work in the main subjects of about 250 boys and girls in five London schools – two direct grant and three comprehensive. The preliminary findings of the project indicate that progress in the skill of writing depends upon the ability to make increasingly fine distinctions with regard to the needs of the reader and to the purpose of the writing task. They suggest, further, that the average teacher (for example in the course of his teaching of history or science or geography) tends to set a written task principally as a means of testing, and does not sufficiently recognize its potential as a means of learning. Again, a study of the functions of the written language in assignments reveals close relationships between distinctive writing abilities and learning processes of increasing maturity and complexity; and suggests the interdependence of writing, reading and speaking.

FUTURE DEVELOPMENTS

The research project's terms of reference do not provide for a consideration of the implications of its findings for teaching and examining. A three year development project entitled Writing Across the Curriculum 11–13 has thus been established at the London Institute of Education under the direction of Miss Nancy Martin to disseminate the research findings and, in conjunction with teachers of all subjects, apply these findings to the problems of the school and the classroom. For further details see sheet EN 11 04.

FINAL PUBLICATION

A final research report is in preparation and will be submitted to the Council early in 1973.

RELEVANT PAPERS AND PUBLICATIONS

Some of the findings are reported and discussed in the following articles:

Alex McLeod 'This is what came out' *English in Education* 3.3., Autumn 1969. (See also the article by Dennis Watson in the same issue)

James Britton 'What's the Use' *Educational Review* (University of Birmingham Institute of Education), Spring 1971

Tony Burgess 'Story and Teller' *Bulletin of the University of London Institute of Education* No 24, Summer Term 1971

Tony Burgess 'Kinds of Writing' *English in Education* 5.2., Summer 1971

And in the following books:

D. Barnes, J.N. Britton and H. Rosen *Language, the Learner and the School*. (Revised Edition), Penguin Books 1971

James Britton *Language and Learning* Allen Lane the Penguin Press, 1970

James Britton 'Words and a World' and Nancy Martin 'What are they up to?' in *Children Using Language*, ed. Anthony Jones and Jeremy Mulford, OUP 1971.

FURTHER INFORMATION is available from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

*Professor Britton is now at Goldsmiths College, University of London.

JUNE 1972

development work in this field

R/X

ORACY (EN 11 03)

DIRECTOR: Dr A.M. Wilkinson

LOCATION: School of Education, University of Birmingham, P.O. Box 363, Birmingham 15.
Telephone: Birmingham (021) 472 1301

DURATION: 1967–1972 **AGE RANGE:** 11–18 **GRANT:** £16,000

AREA OF INQUIRY

The project was established as part of the Schools Council's English research programme:

1. to construct measures of the two aspects of oracy – listening and speaking – appropriate to the age range 11–18
2. to relate the information provided by these measures to information about social, psychological and other linguistic factors.

The word 'oracy' was coined by a Birmingham research team in 1965 as a term to describe the skills of listening and speaking, and is parallel to 'literacy' which stands for the skills of reading and writing.

PROCEDURE

By 1969 research on the 'speaking' side was completed. Two experiments had been carried out. In the first to investigate the practical use of certain situations, six children of varying abilities were given 15 tests, ranging from telling a story to instruction. These were taped and used for discussion purposes. The second experiment was the construction of an oral composition scale in order of merit at CSE level, which could be used as a yardstick for teachers and examiners to assess spoken English.

Research in listening comprehension is now also completed. Three tests have been developed to measure various aspects of the listening skill: Test A for use with children of ten and over. Test B with children of 13+; and Test C for pupils of 17+. Test A is in six parts: a test of content, designed to test the ability of children to follow a piece of informal classroom exposition; two tests involving contextual constraints, which measure ability to infer missing words and sentences from what is actually heard; a phonology test, testing ability to understand differences in meaning brought about by different emphasis; a test of register, to measure the ability to detect changes in the appropriateness of the spoken language used; and a test of relationship, testing the ability to detect the relationship between people from the language they employ.

Test B is again a battery of sub-tests, containing two short tests of content, one involving contextual constraints, one a test of phonology, a test of register and a test of relationships.

Test C is a similar battery of sub-tests, but with no phonology test.

All three tests are in the form of tape recorded extracts of spoken English and a set of questions about them. They have been tested in a number of schools, revised and tested again. When the tests are complete and norms have been calculated, it will be possible for any teacher to use the tests and so obtain scores of listening comprehension which can be related to the established norms.

Two of the examination baord consortia running 16+ feasibility studies for a joint GCE/CSE examination are using the research report for assistance with their new English examination.

PUBLICATION

Publisher: To be appointed. Publication during 1973.

It is hoped to publish the following:

1. *The Quality of Listening,* the project's research report, intended for teachers, teachers' centres, educational administrators and the interested layman. It includes chapters on human communication, language and the spoken language including spoken and written English, aspects of language, register and relationship, listening and the study of spoken language and details of the tests of listening comprehension.
2. Three tapes, one for each of Test A (10+), Test B (13+) and Test C (17+). Each tape lasts approximately 1¼ hours.
3. Accompanying each test a pair of booklets with multiple choice questions from which the child has to select appropriately.
4. A marking key for each test.
5. Score conversions to accompany Batteries B and C.
6. A short manual on administering the tests, with norms and analyses.

RELEVANT PAPERS AND PUBLICATIONS

Andrew Wilkinson *Spoken English* University of Birmingham, Occasional Publication No 2, 1965

D. Atkinson and A.M. Wilkinson *The CSE: A Test of Listening Comprehension,* 1965. Unpublished report for the Schools Council

J. Skull and A.M. Wilkinson 'Construction of an Oral Composition Quality Scale' *British Journal of Educational Psychology,* November 1969

A.M. Wilkinson and L. Stratta 'The Evaluation of Spoken Language' *Educational Review,* June 1969

A.M. Wilkinson 'Research in Listening Comprehension' *Educational Research,* Vol 12 No 3

Andrew Wilkinson 'The Quality of Language Experiences in Younger Children' *Journal of Curriculum Studies,* November 1969

A.M. Wilkinson and L. Stratta 'Listening Comprehension at 13+' *Educational Review,* June 1970.

FURTHER INFORMATION

Copies of published material when available and all publications listed above are available for reference in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

WRITING ACROSS THE CURRICULUM 11–13 (EN 11 04)

DIRECTOR: Miss Nancy Martin

LOCATION: Institute of Education, University of London, Malet Street, London WC1.
Telephone: 01-636 1500

DURATION: 1971–1974 **AGE RANGE:** 11–13 **GRANT:** £31,000

AREA OF INQUIRY

Following a five year study of the development of abilities in the Written Language of 11–18 year olds (EN 11 02), this curriculum project was established to disseminate the research findings as widely and as usefully as possible, and to discover ways in which they could assist classroom practice. In conjunction with teachers of all subjects, attempts are made to apply the research findings to different subjects of the curriculum. A series of discussion documents for teachers is being produced – documents which are concerned with the effective use of writing as a means of learning for pupils of 11–13 years of age.

PROCEDURE

Schools are related to the project on a voluntary basis and fall roughly into three categories:

Experimental schools, in which a project team member works with teachers for an extended period in as many areas of the curriculum as possible, developing the research findings and using them to extend the effectiveness of pupils' use of language and especially their writing. This extended period allows attention to be given to a wide range of problems, some specific to particular subjects, some general to all subjects.

Contact schools. These are schools visited for a short period for a specific purpose; for example, to look at the language problems associated with an existing experimental curriculum, as in integrated studies or mixed-ability teaching. Such schools work with the project by exchanging materials and ideas, and taking part in occasional conferences.

Associated schools are schools which are interested in the project but are too distant for visiting, and so the exchange of materials and ideas takes place by post.

MATERIALS

Arising out of work in schools will be writings of various types; writings whose aim is to encourage debate amongst teachers about the problems and possibilities connected with children's writing. In the first stages these writings will be mainly in the form of printed discussion documents written by the team members; but, as the project extends, the outcomes will increase and vary to include reports and material from the work of the team members in schools and extending to progress reports from the schools themselves.

RELEVANT PAPERS AND PUBLICATIONS

Published material written by members of the team working on the Schools Council Project Written Language of 11–18 Year Olds (EN 11 01) is all relevant to this project. This includes:

J.N. Britton *Language and Learning* Allen Lane, 1970
J.N. Britton What's the use – a schematic account of language function *Birmingham Ed. Review,* Vol 23 No 3 June 1971
D. Barnes, J.N. Britton & H.Rosen *Language, the Learner and the School'* revised edition Penguin '70
Sections by J.N. Britton and N.C. Martin in *Children Using Language* Jones and Mulford, OUP 1971
Sections by N.C. Martin and H. Rosen in *Talking and Writing* ed. J.N. Britton, Methuen 1967
A. Burgess Story and Teller – *London Institute of Education Bulletin* No 24, Summer 1971
A. Burgess Kinds of Writing *English in Education,* Summer 1971
A. McLeod This is what came out *English in Education,* Autumn 1969
English in Education Summer 1971, was a whole issue devoted to 'Language across the Curriculum'
English in Education Autumn 1969, was a whole issue devoted to 'Writing'.

FURTHER INFORMATION is available from the project or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

R

RELIGIOUS EDUCATION IN THE PRIMARY SCHOOL (HU 05 01)

DIRECTOR: C.M. Jones *

LOCATION: Institute of Education, University of Leeds, Leeds LS2 9JT

DURATION: 1969–1971 **AGE RANGE:** 5–11 **GRANT:** £10,750

AREA OF INQUIRY

This survey had four main aims:

1. to summarise and critically evaluate recent literature and research on religious education, especially in the primary field, extracting topics calling for further investigation
2. to survey the religious education in selected primary schools, and by consultation and free written comments by heads and teachers attempt a clarification of aims
3. to evaluate the results of the survey, drawing attention to outstanding examples of religious education judged in relation to stated aims
4. to produce a document that will be of practical use to both specialist and non-specialist teachers and to heads of schools and others responsible for the conduct of worship in school.

PROCEDURE

A sample of 304 primary schools in England and Wales considered to be 'notable for the high quality of their religious education' were nominated by LEAs, HMIs, colleges of education and church schools with and without teachers with specialist qualifications in religious studies.

Each of these schools completed a questionnaire, designed by the project to enable the team to select 56 schools in which to conduct depth studies. The questionnaires elicited not only factual information, but the views of head teachers on the aims of religious education and its place in the primary school, and their aims within their own schools. The 56 schools have been visited for a two day period by a member of the project team. Information collected on these visits has covered the daily act of worship, other special services and classroom prayers; formal and informal approaches to religious education and the integration of religious education with other work in the school, such as art, music, drama and creative writing; moral and social education; community service; the influence of the home, Sunday school and the church on children and the extent of co-operation between these and the school. The project team have also looked at staff-pupil relationships and the effect of a teacher's religious experience upon his work in a school.

In addition to the school survey, the project team have undertaken an appraisal of recent research and literature and its impact upon religious education in primary schools.

FINAL PUBLICATION

The research report is published as Schools Council Working Paper 44 *Religious Education in Primary Schools.* It reports on the survey of recent literature and research outlined above, and assesses the work seen in schools in the light of new thinking and trends in religious education. The report discusses the stages of development in children's religious thinking, and the content of religious education appropriate to the age range. Developments in theme teaching are considered in detail and recommendations are outlined for further research.

RELIGIOUS EDUCATION IN PRIMARY SCHOOLS: DEVELOPMENT PROJECT

The research report outlined a number of topics which needed further investigation. These are:

1. the relationship between moral and religious education
2. the place of worship in the primary school
3. the role of religious education in the middle years
4. the contribution to religious education that can be made by humanist and agnostic teachers in the primary school
5. religious education for non-Christian immigrant children in the primary school
6. the kind of books, visual aids and other teaching material required for use in religious education in the primary school.

The Schools Council has consequently granted £63,000 for a development project, to be based at the University of Lancaster under the direction of Professor Smart and Mr Horder, currently working with the Religious Education in the Secondary School Project. The project will start in May 1973 and run for 3 years. Further details are given on sheet HU 05 03 *Religious Education in Primary Schools: Development Project.*

RELEVANT PAPERS AND PUBLICATIONS

John Conder Religious Education in the Primary School: An Introduction, ATCDE Divinity Section *Bulletin,* No 8, November 1969.

Carol Mumford 'the fourth 'R'?, *Dialogue* 6, August 1970.

Schools Council *Religious Education in Primary Schools* (Working Paper 44), Evans/Methuen Educational, 1972.

FURTHER INFORMATION

Copies of all publications listed above are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

Mr John Conder, a member of the original project team is continuing research in this area entitled 'A psychological study of cognitive and affective elements in the religious education of infant school children', and would be pleased to hear from interested teachers. His address is Pear Tree Farm, Knottingley Road, Pontefract, WF8 2LA, Yorkshire. Mrs Carol Mumford, another team member, will join the development project at Lancaster.

* Mr Jones has now retired.

ENVIRONMENTAL STUDIES (HU 05 02)

DIRECTOR: M. Harris *

LOCATION: Cartrefle College of Education, Wrexham, Denbighshire

EVALUATOR: R.W. Crossland, Institute of Education, Manchester

DURATION: 1967–1971 **AGE RANGE:** 5–13 **GRANT:** £63,700

AREA OF INQUIRY

The project was established to help teachers use the environment systematically to provide experiences which help the progressive development of a child's skills and concepts throughout his primary school career and beyond. Its aims were:

1. to examine and define the value of environmental studies for children throughout the age range 5–13, in terms of concepts, skills and attitudes to be developed
2. to suggest to teachers how they could recognise and use features in their own environments (be they inner-city, suburban, village or country town) to provide carefully graded opportunities for their pupils to acquire these skills, concepts etc.
3. to study and describe the conditions which appeared to be necessary for the successful adoption of environmental studies in schools, the organisational and staffing problems involved and the support which schools use from LEAs and other bodies.

The project team defined environmental studies not as a 'subject' with its own body of factual information but as a way of learning through organised inquiry. They defined it as 'an approach, through activities based on the child's physical and social environment, which leads to the progressive development of attitudes and skills, required for the observation, recording, interpretation and communication of scientific, historical and geographical data'. They stressed that the approach could not be undertaken if the study is made on the basis of rigidly differentiated subjects, but it would be incorrect to think that the approach is antagonistic to the pattern of subject-divisions, so long as these are not insisted on at too early a point in a child's development.

PROCEDURE

The project's work fell into three phases. During the first year, 70 primary and secondary schools from all authority areas in Wales, Monmouthshire and Shropshire, with experience of working with the environment, were selected to work with the project team. The schools were not presented with a model of how environmental studies 'ought' to be conducted, but were asked to continue with their usual work. As a result of observation of these schools, discussions with staff, and an integration of the good practice observed with some of the theoretical ideas worked out by the project team, two draft guides were produced – one describing the value of environmental studies and the implications for heads and staff, and the other consisting of a series of case studies chosen to illustrate different degress of commitment to the approach.

During phase II the project worked with a further 120 schools who had little or no previous experience of environmental studies. Teachers involved attended briefing conferences where they studied the two draft guides, and once back in their schools the project team kept in close touch with their progress. Two further guides were produced – *Starting with Maps,* describing mapping techniques that are progressively suited to children at different stages of development; this was felt to be one way of starting an environmental study and included advice on techniques and organisation; and *Starting with Rocks,* suggesting ways in which teachers can help children to develop scientific skills and understanding through the study of rocks, fossils and minerals. In addition, and following an experiment by teachers at Merthyr Tydfil Teachers' Centre, notes were prepared on the production of local resource materials. A number of teachers' centres were involved in the production of materials on their own particular area, for example, local historical documents, photographs, etc.

Phase III involved the dissemination of project materials to a further 48 schools in 13 local education authorities in England. These schools, experienced in the use of the environment with children, examined and commented upon the feasibility of project suggestions on organisation of studies in their particular situations.

All four guides were revised in the light of phase II and III trials.

PUBLISHED MATERIALS

Publisher: Rupert Hart-Davis, 3 Upper James Street, Golden Square, London WIR 4BP, 1972. Prices given below are correct at time of going to press.

Teachers' Guide. A general introduction to environmental studies, outlining the value of the approach; suggesting ways in which activities might be arranged to help the progressive development

career and beyond. Its aims were:

1. to examine and define the value of environmental studies for children throughout the age range 5–13, in terms of concepts, skills and attitudes to be developed
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Teachers' Guide. A general introduction to environmental studies, outlining the value of the approach; suggesting ways in which activities might be arranged to help the progressive development

of skills; discussing problems of implementation in primary and secondary schools and the kinds of support that are needed. £1.50

Case Studies, prepared by teachers taking part in the project and arranged to show how schools can successfully exploit very different environments to achieve similar ends. £1.50

Starting from Maps, a development of *Starting with Maps* £1.50

Starting from Rocks, a development of *Starting with Rocks* £1.75 (early 1973)

The project has also prepared a 30-minute 16mm colour film showing how practical work can be followed up in the classroom, and integrated with other areas of the curriculum. This will be available in the autumn of 1972 from Rupert Hart-Davis at £95. The film can be hired from the British Film Institute, 81 Dean Street, London W1, cost to be announced.

EVALUATION

Evaluation concentrated on two aspects of the project's work – the manner in which the project was organised and conducted, and the environmental studies approach which was a major end product of the project.

For an evaluation of the second aspect, schools which had participated in phases II and III of the project's developmental work were invited to co-operate.

Evaluation of the approach took the form of three studies; a study of outcomes; a study of contributing factors. and a study of acceptability.

A report on the evaluation has been prepared and a limited number of copies will be available from the Schools Council in 1973.

RELEVANT PAPERS AND PUBLICATIONS

'Teach-in at Abergavenny' *Dialogue* 1, September 1968
'The Environmental Studies Approach' *Dialogue* 6, August 1970
M.I. Harris 'The Curriculum Development Project on Environmental Studies' *Society for Environmental Education Bulletin*, occasional paper 2
Astudiaethau Amgylchedd: Enghreifftian o waith deg ysgol amrywiol, 1972, Schools Council Committee for Wales, 129 Cathedral Road, Cardiff CF1 9SX.
Report of the Working Party on Environmental Studies Resources, 1972, Schools Council Committee for Wales, 129 Cathedral Road, Cardiff CF1 9SX.

FURTHER INFORMATION

All items listed above, the published guides and the film, are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

*Mr Harris is now Principal of Caerleon College, Newport, Monmouthshire.

T/P/R

RELIGIOUS EDUCATION IN PRIMARY SCHOOLS: DEVELOPMENT PROJECT (HU 05 03)

DIRECTOR: Professor N. Smart **DEPUTY DIRECTOR:** D. Horder

LOCATION: Department of Religious Studies, University of Lancaster, Cartmel College, Bailrigg, Lancaster. **Telephone:** Lancaster (0524) 65201 Ext. 4737

DURATION: 1973–1976 **AGE RANGE:** 5–11 **GRANT:** £63,000

AREA OF INQUIRY

The research project on Religious Education in the Primary School (HU 05 01) recommended in its report that further research and development of specimen study and teaching material should be undertaken by the Council.

The development project will proceed from the findings of the research project reported in Schools Council Working Paper 44 *Religious Education in Primary Schools,* to the production of a statement of the principles governing religious education in primary schools. Materials will be developed for this aspect of the curriculum in such a way that they are both suited to the needs and capacities of the children and acceptable to people of differing religious convictions.

The project will take the following factors into consideration:

1. the cultural heritage and religious outlook of the home and of the community
2. the variety of schools involved – County, Voluntary, Aided, Independent etc.
3. the presence of non-Christian immigrant children, and others, in many primary schools
4. the variety of religious viewpoints held by teachers
5. the extent of specialist knowledge possessed by teachers
6. the value of agreed syllabuses and of possible alternatives
7. the place of religion in the life of the school, including the daily act of worship
8. the transition from primary school to secondary school and the change of emphasis
9. the need to prepare for the crises of adolescent questionings and doubt.

PROCEDURE

The project intends to undertake the following:

(i) an analysis of what, from an educational and psychological point of view, is the proper contribution of religious education to the curriculum of the primary school

(ii) the preparation of a clear statement indicating the general principles which govern such religious education in the primary school and their application in:

early childhood	(4–6 yrs)
middle childhood	(7–9 yrs)
late childhood	(10-11 yrs)

(iii) guidance for teachers on the conduct of such a programme and in the use of appropriate materials. This guidance will be given partly by short courses planned on a regional basis, partly by literature for individual study, partly by materials for use with groups at teachers' centres and elsewhere, and partly by publication of a working paper or bulletin for teachers

(iv) the development of appropriate aids to teaching, including specimen teaching materials not already available. These teaching aids will be produced, tested and evaluated with the assistance of five or six groups of about fifteen teachers each and with the help of others experienced in this field

(v) the production of a final report, together with the specimen teaching and study materials mentioned above.

RELEVANT PAPERS AND PUBLICATIONS

Schools Council *Religious Education in Primary Schools* (Working Paper 44) Evans/Methuen Educational, 1972

FURTHER INFORMATION is available from the Deputy Director (from May 1973) or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

N.B. THIS PROJECT WILL NOT START UNTIL MAY 1973.

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JUNE 1972

R

SOCIAL STUDIES 8–13 (HU 08 01)

DIRECTOR: Dr D Lawton

LOCATION: Institute of Education, University of London, Malet Street, London WC1. **Telephone:** 01-636 1500.

DURATION: 1968–1970 **AGE RANGE:** 8–13 **GRANT:** £12,000.

AREA OF ENQUIRY

This research project was set up following a conference on the Middle Years of Schooling held at Warwick University in 1967. A report of this conference is published as Schools Council Working Paper 22: *The middle years of schooling from 8 to 13.* One of the topics discussed was the place of social studies in the curriculum of 8–13 year-old pupils, and it seemed to be generally agreed that the new knowledge included in the social sciences was often completely neglected by schools.

The project's brief was to describe and analyse examples of interesting work in schools intended to promote an understanding of social relationships and concepts, even if the work was not specifically labelled 'social studies', and to assess the need for the establishment of a development project to produce supporting materials for teachers.

PROCEDURE

The project's first task was to discover, through local education authorities, colleges of education, HMIs etc. which schools were considered to be doing interesting work in social studies, defined deliberately broadly by the team to include any kind of learning which fosters the development of social concepts, general social awareness and the understanding of modern industrial society. These schools, about 300 in all, were asked to complete questionnaires, from which 25 secondary and 60 primary schools were selected for a one-day visit by a team member to talk to the head and teachers and observe lessons. Of these, 14 secondary schools and 12 primary schools were selected for longer visits, when the team were able to explore further the nature of the course work or projects, to discuss aims and methods with teachers, and to tape-record interviews with children.

Not being in a position to employ objective evaluation techniques and not wishing to record subjective impressions of the success of work in a particular school, it was decided to base judgements about the work of the school and the sorts of understandings of society that the children were showing on an evaluation of tape recorded interviews with the children.

FINAL PUBLICATION

A research report has been published as Schools Council Working Paper 39 by Evans/Methuen Educational. In addition to an analysis of 10 secondary and 8 primary schools where members of the team spent up to a week observing what was in their view successful work in social studies, the report contains accounts of work in a number of schools that were not visited, either because the work was not completed or because the children concerned had left. There is also an introductory section on the nature of social studies for the 8–13 age group; a section outlining a framework for curriculum development in social studies derived from the research and the implications for teachers involved; a section on resources for social studies, including recommended books, films, filmstrips, wall charts, film loops, records, radio and television; an outline of the basic trends of new social studies projects in the U.S.A.; a section of objectives in social studies teaching; and a section giving specific suggestions to teachers about the sort of social studies work that could be introduced in the middle years of schooling. This framework is in two stages – the first, for children of 8–10, on project-based work, in which there is not necessarily any sequence, and the second, for children of 10–12, a sequential curriculum to develop important ideas about society.

The final section includes a recommendation that a development project be set up, principally to develop materials much needed in this field. This recommendation has been implemented and *History, Geography and Social Science 8–13* started at Liverpool University under the direction of Professor W.A.L. Blyth in September 1971. See sheet HU 08 03.

RELEVANT PAPERS AND PUBLICATIONS

Schools Council *The middle years of schooling from 8 to 13,* (Working Paper 22), HMSO, 1969, 13½p
Schools Council *Social Studies 8–13* (Working Paper 39) Evans/Methuen Educational, 1971, £1.50 .

FURTHER INFORMATION

These publications are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

JUNE 1972

T/P

PROJECT ENVIRONMENT (HU 08 02)

DIRECTOR: R.W. Colton

LOCATION: Department of Education, The University, St. Thomas Street, Newcastle-Upon Tyne, NE1 7RU. **Telephone:** Newcastle (0632) 28511 Ext. 2525.

DURATION: 1970–1973 **AGE RANGE:** 8–18 **GRANT:** £46,000.

AREA OF INQUIRY

In 1965 the Schools Council set up, after consultation with the National Rural Studies Association, a working party to inquire into the nature of rural studies in secondary schools and by an analysis of the information thus obtained:

to clarify the meaning of the term 'rural studies' as applied to school courses, and to identify the place of rural studies in the curriculum of the secondary school in relation to the age and ability of the pupils likely to profit from the subject;

to determine the objectives of rural studies and the means by which these objectives are generally achieved.

As a result of this inquiry, the findings of which are published in *Rural Studies in Secondary Schools,* Schools Council Working Paper 24, a research and development project was established whose aims were:

1. to define the nature of the subject. For example, what areas of knowledge are involved? What is the philosophy of the subject? What are the educational objectives and by what methods are these to be approached?
2. to examine more closely the part which the subject might play in educating children through environment and encouraging an enlightened interest in the environment and a concern for its intelligent management
3. to inquire into the subject's relationship with other subject areas
4. to investigate ways in which satisfactory courses in the subject, for all children, might be provided
5. to examine the facilities necessary for children to gain satisfactory practical experience in the subject in middle and secondary schools.

PROCEDURE

Much of the project's early work has been to visit schools throughout the country, talking to teachers and head teachers, seeing work, and making contact with LEA administrators, advisers, research and curriculum development officers. In addition contact has been made with a wide range of organisations concerned with town and country planning, forestry, conservation, etc. and with the Ford-sponsored Environmental Education Project at the University of Colorado.

In assessing what appear to be the priorities, the project team have decided to concentrate on the following areas:

1. to help schools to play their part in making pupils aware of mankind's dependence on his natural environment and the dangers which threaten it. In so doing it hopes to help introduce into the curriculum material which pupils will consider relevant to contemporary life and which is also educationally valid.

   A series of fifteen topics is at present under trial in sixth forms and elsewhere and this material, in modified form, will be tried out with ROSLA groups
2. the educational use of the school estate as an outdoor resource area
3. the development of an approach to ecology through the study of the ecological principles involved in the management of living things in farm, garden and forest. This guidance is particularly needed by the many rural studies teachers who accept the need for a more scientific and environmentally oriented approach to their subject and for closer connections with other curriculum areas, but who as yet see no clear role for themselves
4. work with educational priority areas and city authorities
5. involving schools in practical projects in association with planning departments and public planning discussion
6. the development with schools in the middle years of new and more educationally viable ways of using the nature trail concept in several areas of the curriculum.

MATERIALS

As a result of its work so far, the project hopes to publish a number of books and booklets on such topics as the project's approach and rationale; school grounds as an outdoor resource area; the educational use of nature and other trails; ethics and environment (a series of booklets on current environmental problems); and production ecology, a new approach to ecology teaching based on domesticated animals and crops.

RELEVANT PUBLICATIONS

Schools Council *Rural Studies in Secondary Schools* (Working Paper 24), Evans/Methuen Educational, 20p

A second report, January 1972, is available from the project.

FURTHER INFORMATION is available from the project director, or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

The Director, Deputy Director and the Area Organisers would be glad to hear from interested teachers. Addresses are as follows:

R.F. Morgan, Deputy Director, Roscoe House, Bolton Road, Anderton, Chorley, Lancashire PR6 9HW.
J.E. Purcell, Department of Education, St. John's College, Lord Mayor's Walk, York, YO3 7EX.
J.R. Slade, Science Adviser, Hampshire Education Committee, The Castle, Winchester.
H.I. Smith, Flat 2, 9 Stevenstone Road, Exmouth, Devon EX8 2EP.
P.K. Twist, Environmental Science Adviser, Holland Education Committee, County Hall, Boston, Lincolnshire.
D.G. Alexander, Education Department, County Hall, Cauldwell Street, Bedford.

T/P

HISTORY, GEOGRAPHY AND SOCIAL SCIENCE 8–13 (HU 08 03)

DIRECTOR: Professor W.A.L. Blyth

LOCATION: School of Education, University of Liverpool, P.O. Box 147, Liverpool L69 3BX
Telephone: Liverpool (051)–709 2196

DURATION: 1971–1974 **AGE RANGE:** 8–13 **GRANT:** £128,000

AREA OF INQUIRY

The project was commissioned at the suggestion of the Social Studies 8–13 Research Project (HU 08 01) and of a working party of representatives from the history, geography and social studies committees and directors of relevant projects, who were considering the urgency of co-ordinating development work in this field.

The project is required to produce materials for use in schools in the age-range 8–13, whether the subjects are taught separately or in some form of combination. This will be done; but the principal emphasis will be laid not on the production of a standard set of materials but on how, with some examples and handbooks as a guide, teachers can be helped to develop procedures and materials appropriate to their own situations.

PROCEDURE

Intensive discussions within the team have led to a formulation of a particular strategy for curriculum development in the project's field which has already gone somewhat beyond the original plan. The principal assumption is that all such development takes place in specific situations whose main features are, in simple terms:

1. Children 2. Teachers 3. Schools 4. Environment

Therefore, the production of standard materials with a claim to be 'teacher-proof' is neither practicable nor desirable. Instead, the team has concentrated on defining what they do regard as common to all teaching of history, geography and social science in the years 8–13, namely *objectives* and *key concepts*.

These reflect certain kinds of skills, concepts, attitudes and interests that it is generally thought desirable to promote, and certain key ideas which run through the subject-matter of history, geography and social science. If these objectives and concepts are borne in mind it becomes possible to select and organise subject-matter on some more consistent principles than those of tradition, habit and personal inclination.

Thirty-one schools, embodying both administrative and environmental variety, have been chosen for intensive development. In each case, programmes of work are being developed appropriate to the school, children, teachers and environment but in accordance with a basic framework of objectives and key concepts which were agreed between the project team and the teachers in the trial schools at a project conference at Southport in January 1972. This work will result in the development of a number of 'units' which will be evaluated, thereby indicating that some types of unit are more generally appropriate than others for attaining the agreed objectives. This general 'unit' phase will last until the end of the school year 1972–3. Meanwhile, an attempt will also be made to test some of the assumptions frequently made about the limitations of children, teachers, schools and environment. Following this 'unit' phase there will in this project be no second phase with revised materials.

DIFFUSION

The diffusion or in-service work will begin in Autumn 1973, using some of the materials already developed. As an interim measure, a termly newsletter is available free from the project.

MATERIALS

The project hopes to produce:

1. examples of materials
2. a handbook expressing a general approach advocated by the project
3. specific teachers' guides on the finding and use of materials, adaption to particular circumstances etc.
4. an evaluation report on the project as a whole, including the evaluation of the diffusion process itself

RELEVANT PAPERS AND PUBLICATIONS

A newsletter is produced termly. Free from the project.
Keith Cooper 'A national development project' *Teachers World*, 5th May 1972
Keith Cooper 'A new approach to history, geography and social science' *Teachers World*, 12th May 1972.

FURTHER INFORMATION is available from the project director, or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL

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FURTHER INFORMATION is available from the project director, or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

T/P

MORAL EDUCATION 8–13 (HU 08 04)

DIRECTOR: P. McPhail

LOCATION: Hughes Hall, University of Cambridge, Cambridge. **Telephone:** Cambridge (0223) 52866.

DURATION: 1972–1976 **AGE RANGE:** 8–13 **GRANT:** £60,000.

AREA OF INQUIRY

This project continues the work of the Moral Education Project 13–16 (HU 13 01). From a research point of view, there is no doubt that moral education should start at an earlier age than 13, ideally when children have their first social encounters, and earlier surveys have found that children in the lower age range would welcome help over relationships and matters of right and wrong.

The Moral Education 8–13 project will carry out research designed to increase knowledge of how children of this age range learn socially and morally; and to discover what part schools can play and are willing to undertake in this area.

PROCEDURE

Much of the research will be done in connection with working parties of teachers and will involve the collection of evidence about children's needs as shown in creative self-expression, play and social behaviour. It is hoped that this study of the needs, interests, feelings and responses of 8-13 year old children will yield a coherent theory about the process of moral and social learning.

The project aims to produce a teachers' book about the moral and social learning of 8-13 year old children, the role schools could play in such learning, and possible ways in which they might meet their responsibilities. It will also provide pupil materials, designed for use in a variety of subject and learning situations, which would help children to make autonomous choices.

It is possible that the materials and the techniques involved could provide a bridge between the work of pupils in the middle and upper ranges.

EVALUATION

Materials and techniques will be tested initially in about 50 trial schools and revised in the light of feedback from these and a further 100-200 schools. Tests will be administered to groups of children before and after using the materials to measure attitude change.

RELEVANT PAPERS AND PUBLICATIONS

For information regarding the general area of moral education see the suggested reading list for the Moral Education 13–16 project (HU 13 01).

FURTHER INFORMATION is available from the project director, or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

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JUNE 1972

T/P/R

INTEGRATED STUDIES PROJECT (HU 11 01)

DIRECTOR: D. Bolam * **DEPUTY DIRECTOR:** D. Jenkins

LOCATION: Institute of Education, University of Keele, Keele, Staffs ST5 5BG.
Telephone: Keele Park (0782-71) 371

DURATION: 1968–1972 **AGE RANGE:** 11–15 **GRANT:** £53,425

AREA OF INQUIRY

The project was established to explore the problems and possibilities of integrated humanities courses during the first four years of secondary education (11–15) and across the whole ability range.

'Humanities' are understood as any subject, or aspect of a subject, which contributes to the rational or imaginative understanding of the human situation. 'Integration' is understood as the exploration of any large area, theme or problem which a) requires the help of more than one subject discipline for its full understanding; b) is best taught by the concerted action of a team of teachers.

PROCEDURE

The project has considered integration at three levels:

1. in the mind of the child – the integration of experience
2. between the forms of knowledge – the organisation of several disciplines, or some of their skills and concepts, as appropriate aids to a particular inquiry
3. in a school – a team of teachers planning, within their given resources, to exploit the latter to achieve the former.

Given that the ultimate objective is for the pupil to be able to integrate his own experience in a meaningful way, the project has developed a series of units that form part of a study based on man himself. These units draw on materials gathered from the expressive arts and the social sciences, while the natural sciences, technology, and 'value' areas are brought in as necessary. A full course is not being produced, and the units are designed to exemplify different patterns of integration.

The approach involves some form of team teaching, and is based on the conviction that integrated units are viable within a number of organisational patterns. The project has produced a handbook for teachers which considers some of the implications of integrated teaching both in the ideas behind integrated work and in practical organisation for schools.

The project worked in close co-operation with 33 schools in four counties who tested materials and provided the central team with feedback. Four co-ordinators working in Cheshire, Staffordshire, Stoke-on-Trent and Shropshire were seconded to the project team, and it was in these areas that most of the trials took place.

MATERIALS

Publisher: Oxford University Press, Education Department, Walton Street, Oxford OX2 6DP from whom further details are available. Publication from April 1972. Prices given below are correct at time of going to press.

For Juniors (Forms 1 + 2)

Unit 1: Exploration Man: an Introduction to Integrated Studies 75p
A handbook in two parts. Part I discusses the philosophy, rationale and organisation of an integrated curriculum. Part 2 introduces working methods and suggests a range of activities drawing on familiar objects in the local environment. *Exploration Man* is therefore an ideas unit working out of a child's surroundings and experience.

Unit 2: Communicating with Others
a) *Making Contact.* Probes ways of communicating through language. It focuses on language in varying social contexts, the narrative mode of traditional ballad and stories, puppetry and communication through drama, and the barriers to making contact imposed by blindness.

Box of 5 copies of each of 14 sheets £5.00

b) *Sight and Insight: Look and Listen.* Part I examines artists and writers as communicators, looks at sketch books and note books as the first explorations of an artist at work; compares the use of language for many different functions and focuses on one animal and its varied representation and role in different times and cultures. Part 2 invites local field work in visual and oral communicating skills.

Box of 5 copies of each of 10 sheets £5.00

c) *Sense of History.* Illustrates and explains the development of writing systems, and the introduction of printing and goes on to provide texts, supported by pictures of contemporary art and artefacts, for a study of the Old English of Beowulf and the Middle English of Chaucer and Sir Gawain.

Box of 5 copies of each of 8 sheets £5.00

1 tape £4.00 + p. tax

10 slides of reproductions of works of art representing the bird and horse, related to the subjects of the *Sight and Insight* sheets £1.25 + p. tax

10 slides of works of art and artefacts belonging to the Anglo-Saxon world and the fourteenth century (2c) £1.25 + p. tax

Unit 3: Living Together

a) *Simple Societies.* The Land Dayaks of Borneo and the inhabitants of Tristan de Cunha are the two simple societies studied. The material is organised around a framework of ideas which structures the inquiry around making a home and raising a family; getting a living and enjoying leisure; social groupings and social control and religious beliefs and practices.

Box of 5 copies of each of 12 sheets £5.00

b) *Complex Society.* Imperial China is taken as an example. The same issues are looked at as in the simple societies. In addition there are sections on the arts, technology and cities. A local study is the necessary counterpart to these studies. Methods of approaching our complex society are thoroughly worked out in the teachers' guide.

Box of 5 copies of each of 12 sheets £5.00

10 slides of works of art and artefacts to accompany Unit 3b. £1.25

A Teacher's Guide containing detailed suggestions for work on Units 2 + 3 75p

For Seniors (Forms 3, 4 and 5)

Unit 4: Groups in Society. To be published by Oxford University Press during 1973 .
This unit asks 'What is Society?' and considers the problem of groups in conflict with majority opinion. There will be sections on the nature of society, groups in Great Britain, a study of gypsies and comparisons of different groups in time and place.

Unit 5: Man-Made-Man. Publication under discussion.
A unit which explores the 'image of man' in creative arts, and the extension of man's capacities through technology.

Unit 6: Development in West Africa
This unit will not be published by the Schools Council.

EXAMINATIONS AND ASSESSMENT

The project team was interested in the possibility of CSE certification by mode 3 assessment, and had exploratory talks with some of the CSE Boards.

EVALUATION

An account of the evaluation of this project is given in a paper by David Jenkins, one of twelve contributions to a symposium of evaluation studies to be published in the Schools Council Research Studies series by Macmillan Education in 1973.

Dr Martin Shipman, a member of the Keele Department of Education but not a member of the project team, has been studying the problems of curriculum innovation, using the project as a case study. Articles are shortly to appear in the *Journal of Curriculum Studies*, and a book is in preparation.

RELEVANT PAPERS AND PUBLICATIONS

David Bolam 'Integrating the Curriculum - a case study in the humanities', *Pedagogica Europaea,* 1970/1971

Education in Cheshire Summer 1971. The whole of this issue of Cheshire's Education Department magazine is devoted to the experience of project trial schools in Cheshire.

Margaret Brooksbank 'Integrated Studies' *Dialogue* 11, May 1972

'World Studies - Integrated Studies' *World Studies Bulletin* No 23, June 1972

D. Bolam 'Integrated Studies: The Craft Dimension' *Studies in Design Education and Craft,* Vol 4 No 2, Spring 1972

D. Bolam 'The Keele Integrated Studies Project - Four Footnotes' *General Studies Association Bulletin,* Spring 1972.

FURTHER INFORMATION

Copies of all published materials and all papers listed above are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

*Mr Bolam is now lecturer in curriculum development at Keele University.

R

SOCIAL EDUCATION (HU 11 02)

DIRECTOR: Professor H. Davies **TUTOR:** J. Rennie *

LOCATION: School of Education, University of Nottingham, University Park, Nottingham.

DURATION: 1968–1971 **AGE RANGE:** 11–16 **GRANT:** £21,000

AREA OF INQUIRY

The purpose of this curriculum action/research project was to explore methods of enabling young people to develop a sense of identification with their community which would lead them to take an active involvement in the affairs of that community.

PROCEDURE

After a preliminary period of working with ten schools in the Nottingham area, the project team evolved syllabuses in close co-operation with four schools, two in Nottingham and two in Nottinghamshire. The team has not devised a set course, nor has it produced materials, but has worked with teachers in the schools on ways to achieve the aims given above. These can roughly speaking be divided into three pases. Initially, for children to become aware for themselves of the needs of their community, they will need certain skills of observation and communication and will also need to go some way towards understanding other people and themselves and the structure of society.

The next phase has involved the children in detailed examinations of the structures and attitudes prevailing in their class, their school, their families, their peer group, and their local area. Profiles have been built up through observation, interviews, photographs, creative writing, drama, etc., and the results carefully recorded and discussed.

The final stage involved surveys of those aspects of the area profile which had captured the interest of the children. Although these surveys were designed to lead to action, they were often overtaken by the action itself which took many forms, and in no instance was predictable by the teacher. Projects undertaken by schools as a result of this process have included work with pre-school children in a local nursery, the presentation of an alternative redevelopment plan for an area, and other work concerned with land utilisation, the move from primary to secondary schools, etc.

Teachers from many different subject backgrounds and with varied interests have been involved in the social education programme in the four schools. Meetings of all teachers involved have been held frequently to plan the syllabus and to discuss papers provided by the project team. Teachers on in-service courses at Nottingham University School of Education, and students from the Trent Polytechnic Department of Education have also been involved in the work of the project.

EVALUATION **Evaluator:** Professor E. Lunzer

An evaluation exercise has been undertaken, which measures whether the project's aims have been achieved in terms of behavioural objectives. The reaction of children to certain situations and their replies to particular demands have also been measured. The exercise forms part of the full report.

DIFFUSION

A Social Education Newsletter put out by the University and produced by a Working Party on Social Education made up of teachers from the project schools is now going out to all schools in the Nottingham University ATO each term.

FINAL REPORT

A report will be published in 1973. It includes a general statement of the aims of Social Education as conceived by the project; a detailed account of the implementation of the social education programme attempted in the four project schools; a statement of the measures taken to evaluate the process of the work, together with quantitive and qualitative results; and some difficulties faced in implementing the programme.

RELEVANT PAPERS AND PUBLICATIONS

John Rennie 'Children and their Community' *Dialogue* 6, August 1970.
Wyn Williams and John Rennie 'Social Education' in *Education for Democracy* ed. Rubenstein and Stoneman, Penguin 1970.
John Rennie 'The multi-racial school' *Secondary Education* Autumn 1971.

FURTHER INFORMATION

Copies of all items listed above and the report, when published, are available for reference in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

* Mr John Rennie is now at the Community Education Centre, c/o John Gulson Infant School, George Street, Hillfield, Coventry CV1 4HB.

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T/P/R

RELIGIOUS EDUCATION IN SECONDARY SCHOOLS (HU 11 03)

DIRECTOR: **Professor Ninian Smart** **DEPUTY DIRECTOR: D. Horder**

LOCATION: Department of Religious Studies, University of Lancaster, Cartmel College, Bailrigg, Lancaster. **Telephone:** Lancaster (0524) 65201 Ext. 4737

DURATION: 1969–1973 **AGE RANGE:** 11–16 **GRANT:** £59,700

AREA OF INQUIRY

The project was established to carry out research and to develop materials relevant to the construction of a satisfying programme of religious education in secondary schools, acceptable to people of differing convictions and taking into account the presence of non-Christian populations in this country. The task was based on the following principles:

1. insight should be given into the role of religion, and in particular the Christian religion, in the formation of British society
2. insight should be given into the nature, challenge and consequences of religious belief
3. religious education should reckon with the pluralism of people and practice in contemporary British society and in the wider world
4. religious education should be open rather than dogmatic; and should require honesty of conviction of whatever kind in the teacher, without infringing the right to develop freedom of choice in the pupil
5. religious education should both be relevant to the experience of the young and designed to broaden that experience towards an understanding of the religious dimension in human culture.

These principles have informed the curriculum development work of the project, and its proposals are based not only on a survey of existing practice in, and literature on, religious education in schools, but on the contributions of philosophy, sociology, history and psychology to the theory and practice of teaching.

PROCEDURE

An initial period was spent surveying existing practice in secondary schools, current literature on religious education and previous research in this field. Over 100 teachers from selected schools in and around Birmingham, Lancashire South-East London and West Riding of Yorkshire co-operated with the project in devising an outline curriculum for pupils aged 11–16, and in the production of specimen multi-media teaching units that pay special attention to the middle years of schooling, early leavers, potential sixth formers and pupils from multi-racial areas. These materials were tested in schools from the same areas and, in the light of this testing, were revised and re-written. A second testing was then carried out in schools in Cambridgeshire, Cumberland, Devon and Exeter as well as in the original pre-pilot schools.

MATERIALS

Publisher: to be selected. Publication from late 1973 onwards.

The main publication will be of the teaching units, and the provisional titles of the first of these are as follows:

11–12 years: *The Man from Nazareth as they saw him, Religion in Britain today, Islam and the Muslim way of life, Signs and symbols – the language of religion, Pilgrimages.*

13–14 years: *The Life of Man – the Family, Exploring Belief, The Making and Meaning of the Bible, How others see life, Science and Religion.*

15–16 years: *Where is religion to be found? Suffering as viewed by World Religions,Work, Religion through culture – Judaism, Religion through culture – Christianity.*

These units will be followed later by others including:

11–12 years: *An introduction to the first Christian writings, The Faith that sings, The legacy of the Norsemen, Who am I? (discovering oneself and others), Creation (a study of myths and myth making), Religious Response.*

13–14 years: *Making Sense, The idea of the Christian Church, An introduction to Hinduism, Freedome and reponsibility, Loneliness, The Activity of worship.*

15–16 years: *Race and Creed, Islam, An introduction to Buddhism, The Sikhs, Humanism.*

11–16 years: *Religious Education and the less able pupil* – the educational needs of less able pupils, methods of work with remedial groups, an outline programme for religious education, and specimen teaching units.

Each of the untis contains carefully defined aims and educational objectives. Whilst the course for younger children will be more general with an emphasis on the common ground of religious education needed by all children, older pupils will have the opportunity to make a study of one or more specific religions or specific religious issues. The project is also anxious that attention be paid to the role of the emotions in the formation of religious beliefs and attitudes, as well as the need for accurate information and the ability to reason clearly and logically. The units therefore encourage the use of role-play and other forms of discovery through involvement.

A teachers' handbook will also be produced to be used in conjunction with the units. It will outline the basic thinking of the project, suggest possible outline syllabuses and offer practical advice on the teaching of religious education in general and of the illustrative teaching methods in particular.

In addition to the production of teaching materials, the project has produced a working paper which was published by Evans/Methuen in July 1971, entitled *Religious Education in Secondary Schools.* This summarises the current debate concerning the place of religion in the school curriculum and suggests that the questions dealt with, ranging from the reasons for studying religion, through aims, objectives, content and methods to minority groups and implications for teaching training, are some of those that need to be faced if the difficulties surrounding the teaching of religion in schools are to be understood and future patterns made plain.

DIFFUSION AND TRAINING

From September 1972, a number of two day conferences or courses will be organised throughout the country, to explain in depth and to illustrate the work and findings of the project.

Secondary schools have been invited to apply for associate membership of the project during 1972/3. They will receive a bulletin twice each term with information about the continuing work of the project, synopses of some of the experimental teaching units and advance notice of courses and conferences. Teachers will be able to select one of the experimental units and try it with their pupils. The project will offer an advisory service to teachers during this period.

Further information about conferences and the associate scheme may be obtained from the project. Early application is advised.

RELEVANT PAPERS AND PUBLICATIONS

D. Horder 'The fourth 'R'?' *Dialogue* 7, February 1971
D. Horder 'Religious Education in Secondary Schools' *Learning for Living,* March 1971
Schools Council *Religious Education in Secondary Schools* (Working Paper 36), Evans/Methuen Educational 1971.

FURTHER INFORMATION is available from the Deputy Director at Lancaster or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

T/P

MORAL EDUCATION 13–16 (HU 13 01)

DIRECTOR: P. McPhail *

LOCATION: Department of Educational Studies, University of Oxford, 15 Norham Gardens, Oxford OX2 6PY

DURATION: 1967–1972 **AGE RANGE:** 13–16+ **GRANT:** £45,250

AREA OF INQUIRY

The project was commissioned as part of the Schools Council's programme for the raising of the school leaving age, and had its roots in Working Paper 2 *Raising the School Leaving Age*. The project has devised curricular methods and teaching materials to help children in secondary school to adopt a considerate style of life, that is to adopt patterns of behaviour which take other people's needs, interests and feelings into account as well as their own. It is interested not only in attitude change, but also in behavourial change.

PROCEDURE

Three independent surveys have shown that about 70% of 15 year-old secondary school pupils would welcome help from their schools with their interpersonal relations and problems, and over the question of right and wrong. Thus it seemed it would not be difficult to motivate children to work out more considerate solutions to their problems over relationships, bearing in mind that this kind of behaviour is rewarding to those involved, and contributes to their happiness and health. The project has worked on the assumption that if it can help children to establish better relationships in the personal, group and organisation areas, then they will be helped to become healthy and creative adults who contribute effectively as individuals in their work situations as well as in their private lives.

Much of the project's work has been carried out in association with working parties of teachers. As a result of considering such teachers' views on how children should be educated morally, the project decided:

1. not to think of moral education as a separate school subject
2. to develop materials which can be used in a variety of subject situations
3. to investigate educational activities frequently mentioned as having moral value
4. to concentrate a considerable proportion of their energy on encouraging the introduction of a morality of communication at both interpersonal and organisational levels.

MATERIALS

Publisher: Longman, from autumn 1972. Enquiries to David Jamieson, Longman House, Burnt Mill, Harlow, Essex. Prices given below are correct at time of going to press.

The curriculum materials have been designed on the principle of the expanding universe, to lead pupils from familiar and simple situations towards more complex and less immediately recognisable problems.

They are in three groups:

A. *In Other People's Shoes,* three sets of cards presenting situations as starting points for pupils and encouraging pupils to consider consequences, taking others' points of view and circumstances into account.

1.	*Sensitivity*	95p (+ 20p p. tax)
2.	*Consequences*	£1.00
3.	*Points of View*	£1.10 (+ 23p p. tax)
4.	*Teacher's Guide*	80p

B. *Proving the Rule?* five short books centring on situations involving the character of Paul and his relationships with his family, friends and society.

1.	*Rules and Individuals*	20p
2.	*What do you Expect?*	20p
3.	*Who do you Think I am?*	20p
4.	*In Whose Interest?*	20p
5.	*Why Should I?*	20p

C. *What Would You Have Done?* six booklets considering moral and social problems in a world-wide context; each booklet takes a true situation as a basis for further work and discussion.

1.	*Birthday, South Africa 1904*	15p
2.	*Solitary Confinement, Lincolnshire 1917*	15p
3.	*Arrest! Amsterdam 1914*	15p
4.	*Street Scene, Los Angeles 1965*	15p
5.	*Hard Luck Story, South Vietnam 1966*	15p
6.	*Gale in Hospital, London 1969*	15p

The project has also prepared for teachers and others interested in education; *Moral Education in the Secondary School* by Peter McPhail, J.R. Ungoed-Thomas and Hilary Chapman. £1.50

Our School by J.R. Ungoed-Thomas. A handbook on the practice of democracy by secondary school pupils. 90p

EXAMINATIONS AND ASSESSMENT

The materials are not intended to be examined, or to form part of an examination syllabus.

EVALUATION

The materials were devised in association with groups of teachers, have been tested in some 200 schools, and revised in the light of feedback from teachers. Tests have also been administered to groups of children before and after using the material to measure attitude change, although the project's prime interest is in behavioural change. The materials have been used by many different subject teachers, and in a variety of subject slots.

TRAINING AND DIFFUSION

The project team has spent much of its final year in introducing the programme and appropriate methods of using materials to Heads, experienced teachers, LEA advisers, wardens of teacher's centres and others. It is intended to provide further opportunity for training alongside the new Moral Education 8–13 project (HU 08 04). The team has also worked with the Community Relations Project in Ulster, producing materials and devising a programme based on local needs. It is hoped that once teachers throughout the country are acquainted with the technique and the materials, they will be encouraged to develop further materials for the needs of their own pupils.

RELEVANT PAPERS AND PUBLICATIONS

Peter McPhail 'The Moral Education Curriculum Project', in *Let's Teach Them Right*, ed. Macy, C. Pemberton Publishing Co., 1969

Peter McPhail 'Education for Change', *New University* February 1970

Peter McPhail 'The Motivation for Moral Behaviour' *Moral Education* Vol 2 No 2

Peter McPhail 'Adolescent Problems of Adjustment', *Essays to a Young Teacher*, ed. Howat, G.M.D. Pergamon, 1966

Peter McPhail 'Education for Living Well', *Journal of the Institute of Health Education*, Spring 1972

Peter McPhail 'Learning to Live with Ulster, *T.E.S.*, 28.4.1972

J.R. Ungoed-Thomas 'Race Relations and Moral Education', *Race Today*, October 1970

J.R. Ungoed-Thomas 'The School as a Community', *Youth Service* Vol 12 No 2

J.R. Ungoed-Thomas 'Patterns of adolescent behaviour and relationships in Northern Ireland', *Journal of Moral Education* Vol 2 No 2

Schools Council *Raising the School Leaving Age* (Working Paper 2) HMSO 1965, 17½p

Schools Council *Choosing a curriculum for the young school leaver* (Working Paper 33), Evans/Methuen Educational 1971, 26p.

FURTHER INFORMATION

Copies of all published materials and all papers listed above are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

From September 1972, Mr Peter McPhail will direct a four year project at Hughes Hall, Cambridge University on Moral Education 8–13. For further details see sheet HU 08 04.

T/P/R

HISTORY 13–16 (HU 13 02)

DIRECTOR: D.W. Sylvester

LOCATION: The University, Leeds LS2 9JT. **Telephone:** Leeds (0532) 31751 Ext. 539.

DURATION: 1972–1975 **AGE RANGE:** 13–16 **GRANT:** £78,000.

AREA OF INQUIRY

The value of history as a humane study and its importance as a means of understanding the present have long been recognised in education.

This project aims to help teachers of history by suggesting suitable objectives and by promoting the use of appropriate materials and ideas for their realisation.

PROCEDURE

The project's work will fall into three parts:

1. a review of current developments, practices and resources, starting with a consideration of development in the curriculum for the years 8–13 (e.g. Environmental Studies 5–13 (HU 05 02), Integrated Studies (HU 11 01) and History, Geography and Social Science 8–13 (HU 08 03). The teaching of history to children aged 13–16 will also be reviewed, as will relevant literature about curriculum development, the nature of history as a field of enquiry, and the needs and abilities of school children aged 8–13

   A short working paper will be produced providing a survey of current practice and an account of the aims upon which the project will base its development work

2. the production, in association with schools, of teacher and pupil materials to serve as examples to encourage teachers to widen their approaches to both teaching and examining, to experiment with differing techniques and syllabus designs and to produce their own materials for class and individual pupil use. The project would also hope to co-operate with various examining boards in mounting experimental examinations in a number of alternative modes of history at 16+

3. the initiation of a diffusion programme to help teachers use the methods and materials.

FURTHER INFORMATION is available from the project director, or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

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JUNE 1972

T/P/R

HUMANITIES CURRICULUM PROJECT (HU 14 01)

DIRECTOR: L.A. Stenhouse

LOCATION: Centre for Applied Research in Education, University Village, University of East Anglia, Norwich NOR 88C. **Telephone:** Norwich (0603) 56161

DURATION: 1967–1972 **AGE RANGE:** 14 -16+ **FINANCE:** £174,328 (+£60,000 from Nuffield).

AREA OF INQUIRY

The project was set up in September 1967 as part of the Schools Council's programme for the young school leaver, to offer to schools and to teachers stimulus, support and materials appropriate to enquiry-based courses which cross the traditional boundaries between English, history, geography, religious studies and social studies. It was initially intended for pupils of average and below-average ability but the project's materials and methods have been found useful across the ability range and for older age groups.

The project started from the conception of the humanities outlined in Schools Council Working Paper 2, *Raising the School Leaving Age:*

'The problem is to give every man access to a complex cultural inheritance, some hold on his personal life and on his relationships with the various communities to which he belongs, some extension of his understanding of, and sensitivity towards, other human beings. The aim is to forward understanding, discrimination and judgement in the human field'.

PROCEDURE

As a result of experience in some 32 trial schools and four approved schools the project has defined a teaching pattern which has discussion rather than instruction as its core and in which pupils review 'evidence' under the chairmanship of a teacher who represents educational values and critical standards but maintains neutrality - does not take sides - on the controversial issues under discussion.

The project director has written:

'It is also pertinent to ask: what is meant by educational values and critical standards? The teacher, though he is neutral on controversial issues, has as an educator a responsibility to foster rationality rather than irrationality, sensitivity rather than insensitivity, imaginativeness rather than unimaginativeness, tolerance rather than intolerance. He must also help students to see that standards of critical judgement are important. It is important that he learns to do this through thoughtful questioning which does not direct the students to particular conclusions in controversial areas.

Of course, it is not possible to attain perfect neutrality. The important point is that the teacher accepts the principle of neutrality as a criterion by which to criticize his teaching and that he makes this criterion clear to his students so that both he and the group understand what he is trying to do.

'Pupils into Students' *Dialogue* 5.

A controversial issue has here been defined as one which divides pupils, parents and teachers because it involves an element of value judgement.

Discussion cannot fruitfully take place in a vacuum and the project has therefore developed collections of materials as 'evidence' for use in the discussion. These materials consist of photographs, statistical tables, films, tapes, slides, extracts from books and other written sources (see over). They are intended as a basis for an archive collection to which it is hoped teachers will add their own items. By using the word 'evidence', the project intends not to define the status of the materials but the way they are used. They are used not for their own sake but in order to contribute to the discussion of a controversial issue, and in this context must be weighed reflectively and critically.

Whilst discussion provides the core of work in this project, there are many other activities which may arise from the discussion, the results of which are fed back into the discussion. These fall into three main areas: 1) research into problems thrown up by the evidence, issues not fully covered, or a local study, e.g. a study of war-time bombing in the locality, or a visit to a local playgroup; 2) personal work, such as writing, painting, role play and drama; and 3) work which draws together the enquiry, for example the making of a film, the production of additional materials, an exhibition of work.

MATERIALS

Publisher: Heinemann Educational Books Limited, 48 Charles Street, London W.1. from whom materials may be ordered. Prices given over are correct at time of going to press.

Collections:	*Education*	May 1970
	War and Society	May 1970

school leaver, to offer to schools and to teachers stimulus, support and resources for enquiry-based courses which cross the traditional boundaries between English, history, geography, religious studies and social studies. It was initially intended for pupils of average and below-average ability but the project's materials and methods have been found useful across the ability range and for older age groups.

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The project director has written:

'It is also pertinent to ask: what is meant by educational values and critical standards? The teacher, though he is neutral on controversial issues, has as an educator a responsibility to foster rationality rather than irrationality, sensitivity rather than insensitivity, imaginativeness rather than unimaginativeness, tolerance rather than intolerance. He must also help students to see that standards of critical judgement are important. It is important that he learns to do this through thoughtful questioning which does not direct the students to particular conclusions in controversial areas.

Of course, it is not possible to attain perfect neutrality. The important point is that the teacher accepts the principle of neutrality as a criterion by which to criticize his teaching and that he makes this criterion clear to his students so that both he and the group understand what he is trying to do.

'Pupils into Students' *Dialogue* 5.

A controversial issue has here been defined as one which divides pupils, parents and teachers because it involves an element of value judgement.

Discussion cannot fruitfully take place in a vacuum and the project has therefore developed collections of materials as 'evidence' for use in the discussion. These materials consist of photographs, statistical tables, films, tapes, slides, extracts from books and other written sources (see over). They are intended as a basis for an archive collection to which it is hoped teachers will add their own items. By using the word 'evidence', the project intends not to define the status of the materials but the way they are used. They are used not for their own sake but in order to contribute to the discussion of a controversial issue, and in this context must be weighed reflectively and critically.

Whilst discussion provides the core of work in this project, there are many other activities which may arise from the discussion, the results of which are fed back into the discussion. These fall into three main areas: 1) research into problems thrown up by the evidence, issues not fully covered, or a local study, e.g. a study of war-time bombing in the locality, or a visit to a local playgroup; 2) personal work, such as writing, painting, role play and drama; and 3) work which draws together the enquiry, for example the making of a film, the production of additional materials, an exhibition of work.

MATERIALS

Publisher: Heinemann Educational Books Limited, 48 Charles Street, London W.1. from whom materials may be ordered. Prices given over are correct at time of going to press.

Collections:	*Education*	May 1970
	War and Society	May 1970

Family	November 1970
Relations between the Sexes	November 1970
People and Work	May 1971
Poverty	September 1971
Law and Order	Summer 1972
Living in Cities	Winter 1972

Materials prepared on *Race* will not be published.

Each collection costs £37.67 (inc. purchase tax). A collection includes:

1. 20 copies of each of 200 pieces of printed material. Each 20 is packaged in a polythene bag. The printed materials are presented in looseleaf form and include extracts from novels, drama, history, biography, social sciences, poems and songs, letters, reports, newspaper articles, maps, cartoons, questionnaires, graphs, statistics, photographs, advertisements
2. 2 teacher's sets, each containing 1 copy of each piece of printed material and 1 copy of the handbook on the area of enquiry (including synopses of approx. 100 recommended films). The handbooks are available separately, price 35p
3. 2 copies of *The Humanities Project: an Introduction*, containing guidelines for the use of materials and the group discussion. This is available separately, price 35p
4. 1 set of tapes (about 3 hours playing time). These are of original material such as interviews and songs, and of poetry and drama (which may also appear in printed form).

N.B. Films, including shorts, extracts and features, are commended in the handbook. Slides of relevant paintings, photographs, and documents are available separately from the Slide Centre, Brodrick Road, London S.W.17.

The teacher's set (nos. 2,3,4) is available separately, price £13.39 (inc. purchase tax) from Heinemann Educational Books Limited.

In addition to teaching materials, a research series *Studies in Humanities Teaching* will be published. This series will report on work in schools and deal with special problems such as creative work by pupils, school organisation and examining.

EXAMINATIONS AND ASSESSMENT

The project has discussed patterns of CSE Mode 3 examining with the Boards. Some tentative proposals are given on pages 33–36 of *The Humanities Project: an Introduction*, and a book on examining is in preparation.

EVALUATION

Evaluator: B. Macdonald

Whilst the project's materials have been evaluated by the central team during their use in trial schools and have been revised in the light of teachers' comments, the project's teaching methods and its impact within the school have been the subejct of a separate four year study by the evaluation team. Data has been collected from large numbers of trial schools and more recently, from schools using published materials, with reference to variables ranging from ethos and locality of the school to the reaction of teachers to innovation. Depth studies have also been undertaken. The aim of the evaluation work is to provide guidance to heads and others who have to make decisions about whether or not they wish to use and build upon the ideas and materials developed by the project.

The production of materials on *Race* posed problems which called for a particularly carefully controlled trial and evaluation, and a pilot study was mounted in six schools in order to test the feasibility of the project's approach in this area, to assess its effects on pupils and to alert teachers to the problems of teaching *Race*. Preliminary reports of this research have been published in *Race* (see below) and a fuller repórt is in preparation. The Schools Council subsequently decided not to authorise publication of the materials.

A number of reports and case studies are in preparation. An account of the evaluation of this project is given in a paper by Barry Macdonald, one of twelve contributions to a symposium of evaluation studies to be published in the series 'Schools Council Research Studies' by Macmillan Education in 1973.

DIFFUSION AND TRAINING

It is clear from the evaluation study of the project that it is in the highest degree unlikely that teachers will find it profitable to use the project materials in a discussion setting without training. To this end the project has organised a number of five-day training courses for teachers, advisers and others nominated by their local authorities who will in turn conduct their own courses for teachers in a particualr area. Courses have also been run for lecturers in colleges, departments and institutes of education and for further education lecturers. Teachers wishing to know of further training plans should contact their local education authority or the Director, Centre for Applied Research in Education at the University of East Anglia.

A series of papers intended for authorities running training courses are available. Titles include *Assessment and examination, Activities other than discussion, Beginning the enquiry, Organising the project in schools, Problems in a diffusion school, Compiling and editing the materials.*

The handbooks are available separately, price 35p

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A series of papers intended for authorities running training courses are available. Titles include *Assessment and examination, Activities other than discussion, Beginning the enquiry, Organising the project in schools, Problems in a diffusion school, Compiling and editing the materials.*

An edited videotape version of extracts of classroom discussion in experimental schools is also available for local training courses, on Sony ½" (approx. 50p hire) or Ampex 1" (approx. £1 hire). Transcripts 6p each.

Papers and videotapes are available from the Centre for Applied Research in Education at the University of East Anglia.

RELEVANT PAPERS AND PUBLICATIONS

L.A. Stenhouse 'The Humanities Curriculum Project' *Journal of Curriculum Studies,* Vol 1, No 1 November 1968.

L.A. Stenhouse 'Open-minded Teaching' *New Society,* 24 July 1969.

L.A. Stenhouse 'Handling controversial issues in the classroom' *Education Canada,* December 1969.

John Elliott 'The role of the Humanities in Vocational Education', *Studies in Education and Craft,* Journal of College of Craft Education. Autumn 1969.

L.A. Stenhouse 'Pupils into Students?' *Dialogue* 5, February 1970.

The Humanities Project: an Introduction, Heinemann Educational Books Ltd., 1970 35p

Schools Council *Raising the School Leaving Age* (Working Paper 2), HMSO 1965, 17½p

Schools Council *Choosing a Curriculum for the Young School Leaver* (Working Paper 33), Evans/Methuen Educational, 1971, 26p

Lawrence Stenhouse 'Some limitations of the use of objectives in curriculum research and planning, *Pedagogica Europaea* 1970/71.

L.A. Stenhouse 'The Humanities Curriculum Project: The Rationale', *Theory into Practice,* Vol X, No 3, June 1971.

Barry Macdonald 'The Evaluation of the Humanities Curriculum Project: A Holistic Approach' *Theory into Practice,* Vol X, No 3 June 1971.

Barry Macdonald and Jean Rudduck 'Curriculum Research and Development Projects: Barriers to Success' *British Journal of Education Psychology,* Vol 41 Part 2, June 1971.

Helen Simons 'Innovation and the case-study of schools', *Cambridge Journal of Education,* October 1971.

Gajendra K. Verma and Barry Macdonald 'Teaching Race in Schools: Some effects on the attitudinal and sociometric patterns of adolescents', *Race* October 1971.

Christopher Bagley and Gajendra K Verma 'Some effects of teaching designed to promote understanding of racial issues in adolescents'.

J.P. Parkinson and Barry Macdonald 'Teaching Race Neutrally', *Race* January 1972.

Lawrence Stenhouse 'The idea of neutrality', *Times Educational Supplement,* 4 February 1972.

TELEVISION AND RADIO

Education Programme: Humanities. A 5 minute clip from a black and white 16mm film of BBI TV programme 17 May 1970.

What are teachers for? Radio 4 programme, 12 August 1970. A half-hour programme of classroom discussion and interviews on the Humanities Project.

The project has also been featured in a number of radio and television programmes in the Open University Educational Studies Course.

FURTHER INFORMATION

All items listed above and copies of all published materials are available for reference only in the Schools Council Project Information Centre

Further information is available from the Director at the Centre for Applied Research in Education or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

T/P

GEOGRAPHY FOR THE YOUNG SCHOOL LEAVER (HU 14 02)

DIRECTORS: R. Beddis and T.H. Dalton

LOCATION: Avery Hill College of Education, Avery Hill Road, London SE9. **Telephone:** 01-850 9339

DURATION: 1970–1974 **AGE RANGE:** 14–16 **GRANT:** £55,000

AREA OF INQUIRY

The project was commissioned as part of the Schools Council's programme for the raising of the school leaving age and is concerned with pupils of below average to average ability between the ages of 14 to 16.

Whilst not restricting its work entirely to the ability group considered by the Newsom Committee the approach suggested in their Report seems appropriate to the project's outlook, namely, that 'the curriculum in the final years should be deliberately outgoing - an invitation into the adult world of work and leisure'. It is the belief that the geographer has a distinctive contribution to make to the understanding of many problems facing the young adult today that provides the basis of the project's work.

The main aims are:

1. to examine successful work which is being undertaken at present with relevant groups of pupils in the 14–16 age group
2. to define the contribution that geography can make to the particular educational needs of pupils of this age and ability
3. to investigate the skills which these pupils can master and ideas that can be understood in the pursuit of this work
4. to produce schemes of work and supporting resources which can be used in either a subject or an interdisciplinary framework.

PROCEDURE

The team's initial work involved a review of current practice in schools - a consideration of syllabus design, teaching materials and modes of assessment. Questionnaires were circulated to 164 schools, and visits were made to a number of schools and teachers' centres.

Resource collections are in preparation which reflect the geographical background to current problems involving society and the individual. It is hoped that the topics chosen will be interesting to pupils now at this point in their lives, will be exploitable in the local situation, will be relevant to their future and of more than transitory significance, and will be capable of stimulating the pupil to personal involvement, creative thinking and provide him with opportunities for simple problem-solving.

Each theme is being seen as a means of achieving a four-fold category of objectives - knowledge and logical processes, personal attitudes, skills and creative activities. Knowledge is being thought of in terms of concepts and ideas illustrated by factual material.

After an initial pre-pilot trial of the first theme in five schools in South-East London, the materials are being tested in schools in Monmouthshire, Merthyr Tydfil, Sheffield, Berkshire, Tynemouth, Newcastle-upon-Tyne, Northumberland, West Riding, Bromley and ILEA. There are in addition groups of associate schools in Kent, Wiltshire, Warwickshire, Worcestershire, Leicester, Cheshire, Hull and Carlisle.

MATERIALS

Publisher: Not yet selected. Publication from 1973.

Three main themes are planned: *Man, Land and Leisure, Urbanisation and Urban Change* and *The Geography of Work.*

At the trial stage the materials include a teachers' guide with an appendix including suggestions for related work in other disciplines, supplementary information and references. Loose leaf resources comprise photographs, extracts from texts and newspapers, maps and diagrams. Other resources include overhead transparencies, slides, tapes and film strips. Trial schools are being encouraged to provide their own local resources of maps and air photographs and the teacher groups to develop

relevant case studies to parallel those provided by the project team. Financial help has been given by the LEAs for this purpose.

A supporting handbook, including sections on the project's theoretical framework, exemplars of other possible themes based on social issues, the results of the evaluation exercise in trial schools etc., is also planned.

Whilst these materials are intended to engage pupils for their final two years of study, they do not constitute a detailed syllabus.

EXAMINATIONS

A number of trial schools are developing CSE Mode 3 syllabuses based on the project's work, and it is hoped that discussions with the CSE Boards will continue over the next two years.

TRAINING AND DIFFUSION

In the period up to the end of May 1972 the project team had participated in a number of lectures, symposia and conferences in England, Wales and Scotland. The team has also contributed to a TV programme (Programme 8) in the BBC series 'ROSLA and After' in March 1972.

The project team regard all the main trial schools as centres of diffusion. Neighbouring schools may wish to make informal contacts during the period of the trial. Regional conferences, teachers' centre meetings and in-service training courses are planned for 1973/74 prior to and following the publication of the materials. Meanwhile they welcome invitations to participate in meetings of local teachers such as those organised through teachers' centres.

RELEVANT PAPERS AND PUBLICATIONS

A Newsletter is produced periodically and is available from the project.

Rex Beddis 'Geography for young leavers', *Times Educational Supplement*, 28 April 1972
Schools Council *Raising the School Leaving Age* (Working Paper 2), HMSO 1965 17½p
Schools Council *Choosing a curriculum for the young school leaver*, Evans/Methuen Educational 1971 26p.

FURTHER INFORMATION is available from Mr. T. Higginbottom at the project or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

T/R

GEOGRAPHY 14 –18 (HU 14 03)

DIRECTOR: Dr Gladys Hickman

LOCATION: School of Education, University of Bristol, 22 Berkeley Square. Bristol BS8 1HS
Telephone: Bristol (0272) 24161

DURATION: 1970–1974 **AGE RANGE:** 14–18 **GRANT:** £70,050 (+£2,440 from N. Ireland).

AREA OF INQUIRY

This curriculum development project was established to help teachers of geography to structure courses and prepare materials for use in schools, primarily with more able pupils in the 14–18 age range.

Its work was to encompass the following areas:

1. an analysis of the current situation in geography teaching in schools, including recent changes in teaching and research in geography in the universities
2. the collection of relevant research findings on cognitive and other aspects of personal development
3. the identification and clarification of relevant concepts and key ideas and their possible structuring into courses of study
4. the provisional formulation of objectives in geography teaching in this age range and with more able pupils
5. the clarification of criteria for content of courses
6. the preparation, trial and diffusion of materials and other 'resources for learning'
7. the ongoing evaluation of outcomes and objectives.

PROCEDURE

The project's initial phase has been exploratory and comprised a review of the existing literature on curriculum development in geography, the processing of a questionnaire on geography teaching in secondary schools, and work with 10 pilot schools in different parts of the country. An interim working paper, summarising the conclusions of this period, has been written and is expected to be published in 1973.

It will be used both to communicate the project's thinking and aims to a wider audience and to stimulate feedback from teachers not so far directly involved.

The overall aim of the project is to co-ordinate three elements in curriculum development: the production of teaching resources; an experimental O-level examination; and in-service support and teacher involvement.

The aim in the pilot schools has been to help teachers define their objectives and draft programmes of work; to realise constraints and impediments to change; and to identify ways of working with teachers to revise and re-think teaching materials and ways of presentation. The departments have formulated syllabuses and materials for the experimental O-level examination which will be taken in 1974.

University geographers have been involved with teachers, through seminars and in writing groups, in preparing material suitable for schools in urban and physical geography. Another group is working on units related to Development Studies. Some of this material will appear in the interim Working Paper, together with exemplar materials from the schools.

Although the project's work has throughout been informed by sixth form needs, the initial emphasis was placed on the 14–16 age range. This decision reflected the belief that change was more urgently required in the fourth and fifth years, and that whatever resulted at this level would itself help to shape the sixth form curriculum. The project will increasingly direct its attention to the sixth form during the next two years, while continuing to support the pilot schools during the experimental O-level course and to assist teachers in the development and trial of more exemplar material.

EXAMINATIONS

The Cambridge Local Examinations Syndicate have agreed to sponsor an experimental O-level examination in geography in the 10 pilot schools. Half the marks of the final assessment will be awarded to the terminal examination, which will be based on a core syllabus, allowing schools to choose a variety of places and regions to exemplify common ideas. 50% of the assessment will be for course work including 20% for individual study, and will be marked by teachers and moderated by the Syndicate.

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DIFFUSION

Workshop courses have so far been confined to teachers from the pilot schools. During 1973, however, the project intends to issue a newsletter for all secondary schools and teachers' centres outlining its work and plans for the future. The aim will be to stimulate local discussion and activity through the newsletter and the interim working paper and to organise work-shops in response to demand.

RELEVANT PAPERS AND PUBLICATIONS

John Reynolds 'Schools Council Curriculum Development Project; Geography 14–18 years *Geography*, January 1971

J. Reynolds 'Geography 14–18: a framework for development' March 1971
Not suitable for general inquiries but useful to those interested in a theoretical analysis of the technical problems of curriculum development. A shortened version is available from the project.

John Reynolds 'Geography for fourteens to eighteens' *Times Educational Supplement*, 28 April 1972

John Reynolds 'Curriculum Change and the Schools Council Geography 14–18 Project' *Area*, Vol 4 No 2, 1972.

FURTHER INFORMATION is available from the project or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

T/P

GENERAL STUDIES PROJECT (HU 15 01)

DIRECTOR: R. Irvine Smith

LOCATION: University of York, The King's Manor, York YO1 2EW. **Telephone:** York (0904) 59861.

DURATION: 1968–1974 **AGE RANGE:** 15–18 **GRANT:** £55,250

AREA OF INQUIRY

The aim of the project is to help schools and colleges in the general education of students over the age of 15. The project is equally interested in courses designated as General or Liberal Studies, and in courses in academic subjects examined at O- and A-level, insofar as these are intended to contribute to the student's general education.

PROCEDURE

The project is concentrating on two main questions:

1. what improvements in teaching methods and materials are within the immediate reach of most teachers?
2. how can a school best manage its resources for developing general education and supporting teachers who experiment with new methods?

The methods with which the team are primarily concerned are guided individual study, tutorials, and different types of group discussion, and they aim to help teachers try out and assess new methods and develop old ones. To this end, the project, with the help of associate teachers, built up a resources bank of some 6,000 looseleaf items from newspaper cuttings and extracts from books to photographs and references to film. These have been tested in 21 schools and colleges of further education and used in 250 associate schools. The materials have been used in structured General Studies Courses, as supplementary material for CSE, O-and A-level courses, in science courses for non-specialists, for individual tutorial work, as a stimulus for creative activity, and in games, simulations and discussions.

PUBLISHED MATERIALS

Publishers: Longman and Penguin Education, from February 1972. Information and sample units from Mr Michael Park, Publishing Manager, General Studies Project, The King's Manor, York.

The looseleaf materials are published in units of 5–15 items held together in a pad. There are three types of unit: *Study Units* contain source materials, with a study guide to help the student work on them effectively and a note addressed to the teacher. *Reference Units* discuss books, audio visual materials and resources relating to the topic. *Teachers Units* contain material on teaching styles, course planning, the use of study units and their relation to the materials and activities.

The first hundred Study Units will be published in 1972 and are arranged in eleven thematic catalogues. The catalogues are:

China, concentrating on China since 1949 and dealing with foreign policy, agriculture, resources, economic development, politics and Mao Tse-tung.

Conflicts, raising questions of conflicting values, perceptions and interpretations in a variety of personal, social and political contexts.

Crime, including statistics of crime, criminality as seen sociologically and psychologically, the police, the courts, treatment of offenders, and prisons.

Economics, including international trade, GNP, standard of living, taxation, inflation, economic developments, and national economic statistics.

Education, including units on teachers, pupils and parents, the school as a political organisation, sex education, and the education of women.

Environment, mainly from the standpoint of ecology, but with a unit on nature as interpreted in literature.

Family, drawing upon sociology, anthropology, the arts and personal experience.

Popular Arts, a consideration of magazines and comics, pop stars, and the place of the popular arts in everyday life.

Population, including world population problems, food supply and birth control.

Science and Responsibility, including social and ethical problems in modern medicine and other branches of science and technology.

Teaching and Learning, intended for teachers, student-teachers and organisers of in-service work.

Catalogues to be published in 1973 will include further material on some 1972 themes, plus *Towns, Design, Genetics, Behaviour* and *Africa*.

Materials are published by a subscription scheme. The annual subscription of £40 covers the cost of 11 catalogues (which together include the 100 units), and an issue of vouchers for a further 350 copies of individual units.

RESOURCES CENTRES

In addition to the development of a specimen resources centre at York, the team have assisted a number of schools using their trial materials in the establishment of school resources centres and methods of production, storage and retrieval.

Materials for teachers on resource management will be published through the subscription scheme. As a result of the increasing interest in the management of resources in schools and colleges, the Schools Council has funded a project on Resources Centre (OR 09 01).

DIFFUSION AND TRAINING

During 1970/71 the project ran a number of one-week courses, three days of which have been spent at York preparing a Unit and discussing it with team members, and two days at trial schools (Sevenoaks or Codsall Comprehensive) studying the management of resources in the respective schools' resources centres. Courses have also been run entirely at Codsall on the management of resources.

Teachers wanting further information on the availability of courses should contact the project or their local authority or School of Education. Courses are becoming available at a number of universities, colleges and local authority teachers' centres, led by teachers who have worked already with the project as contributors, team members or trial school staff.

The initial project has been extended from 1972 to 1974 in order to provide continued assistance for teachers using the published materials. It is planned to produce further documents including some arising from work in schools, tape-recordings and visual material. This bank of support materials is initially to be the joint responsibility of the General Studies Project and the General Studies Association, and will ultimately be run by the General Studies Association from its documentation centre at the University of York. A complimentary programme of research and development, serviced by the York bank is being organised for the GSA by D.J. Burrell of Sussex University School of Education, and it is hoped to broaden the research and development programme accordingly, and to share the documentation service.

EXAMINATIONS

The materials are not intended as an A-level or O-level course, but may be used to supplement an existing course. Some have also been used in CSE work.

EVALUATION

The materials and the use to which they have been put have been evaluated by means of questionnaires and visits to the trial schools. Associate schools, who paid a subscription for their material, were not part of the evaluation scheme.

RELEVANT PAPERS AND PUBLICATIONS

Schools Council *General Studies 16–18* (Working Paper 25), Evans/Methuen Educational, 1969, 16p.

R. Irvine Smith 'The General Studies Project and General Education', *General Education* No 17, Autumn 1971 (available from the Project Secretary, price 40p.)

Malcolm Holder, *Resources*, Codsall Comprehensive School, Codsall, Staffs. (30p. from the school).

David Williams 'General Studies' *Dialogue* 11, May 1972.

Schools Council *School Resource Centres* (Working Paper 43), Evans/Methuen Educational, 1972.

FURTHER INFORMATION

Copies of all published materials and all items listed above are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

Further information about the project is available from the director.

Information about the General Studies Association may be obtained from David Killingray, Goldsmiths College, London SE14.

JUNE 1972.

R

EVALUATION OF THE FRENCH PILOT SCHEME (LA 08 01)

SENIOR RESEARCH OFFICER: Mrs Clare Burstall

LOCATION: National Foundation for Educational Research, The Mere, Upton Park, Slough, Bucks. SL1 2DQ. **Telephone:** Slough (75) 28161

DURATION: 1964–1974 **AGE RANGE:** 8–16 **GRANT:** £87,250 (+£110,000 from the DES).

AREA OF INQUIRY

The evaluation of the pilot scheme for the teaching of French in primary schools undertaken by the NFER on behalf of the Schools Council and the DES, began in 1964. To date, the research team has concentrated its work on the following areas of enquiry:

1. the effect of the introduction of French on the level of general attainment
2. the assessment of the level of achievement in French, with particular reference to the performance of low-achieving children
3. the influence of attitudinal factors on success or failure in learning French
4. the organisational and teaching problems posed by the introduction of French in the primary school.

The evaluation was initially concerned with two successive year-groups, or cohorts, of pupils, the first of which started French at the age of eight in 1964, the second in 1965. In 1968 the Schools Council agreed to sponsor an extension of the study to a third group of 6,000 children, who would begin French in September 1968.

In 1971 a further grant was given to permit a terminal assessment of the level of proficiency in French reached at the age of 16 by the pupils in the second experimental cohort and by a comparable group of secondary school pupils. (The latter group will share the age-structure and social composition of the main sample, but will not have been taught French in the primary school). A battery of proficiency tests in French will be constructed, and the attitudes of those learning French in the pilot scheme sample will be compared with those of the comparison sample.

PROCEDURE

During 1963, 124 primary schools in 13 different areas were selected for inclusion in the pilot scheme. For purposes of evaluation each school was assigned to one of three groups, according to their size, type and history of French teaching (i.e. how much French teaching there had been prior to the introduction of the pilot scheme). The first group or cohort of 6,000 children aged 8 began the study of French in 1964; the second cohort of 6,000 in 1965. The schools involved used a number of different courses, including the draft Nuffield *En Avant* materials, *Bonjour Line, Bon Voyage* and *Parlons Francais.*

To measure the general level of attainment in schools taking part in the experiment, a battery of general attainment tests (Primary Verbal, Reading, English, Problem Arithmetic and Mechanical Arithmetic) was administered. As regards attainment in French, tests were devised in listening comprehension, oral production, reading comprehension and ability to write in French. Attitudes towards learning Frenchwere tested by means of questionnaires.

PRELIMINARY FINDINGS

The procedure and preliminary findings of the research team are publiisned in two interim reports' *French from Eight: A National Experiment* published by the NFER in 1968 and *French in the Primary School: Attitudes and Achievement,* NFER, 1970. The latter describes research carried out between spring 1967 and autumn 1969, spanning the transition between the primary and secondary stages of the experiment, and comprises nine sections:

1. general attainment in the primary school - does the introduction of French at the primary level have any marked effect on standards of general attainment?
2. achievement in French in the primary school
3. pupils' attitudes towards learning French in the primary school
4. French in the primary school: the viewpoint of the primary head
5. the HMI evaluation of the primary stage of the pilot scheme. An analysis of the questionnaire data presented by members of H.M. Inspectorate

6. achievement in French in the secondary school
7. pupils' attitudes towards learning French in the secondary school
8. French in the secondary school: the viewpoint of the secondary head
9. the HMI evaluation of the secondary stage of the pilot scheme.

REPORTS

Clare Burstall *French from Eight: A National Experiment,* NFER, 1968
Clare Burstall *French in the Primary School: Attitudes and Achievements,* NFER, 1970

A third report, concluding the evaluation of the primary stage of the experiment, will be prepared in 1972.

A final report, concerned mainly with the secondary stage of the experiment and including a terminal assessment of proficiency in French at the age of 16 of pupils in the second cohort, will be prepared in 1974.

RELEVANT PAPERS AND PUBLICATIONS

Schools Council *French in the Primary School* (Working Paper 8), HMSO, 1966
David Rowlands 'French in the Primary School' in *Developing a New Curriculum,* edited by A.G. Howson, Heinemann for CREDO, 1966
David Rowlands 'French' in *Children at School,* edited by A.G. Howson, Heinemann for CREDO, 1969
Clare Burstall 'French in the Primary School: Some Early Findings', *Journal of Curriculum Studies,* May 1970
'French from Eight to Sixteen' *Modern Languages* Vol III No 3. An account of a one-day conference organised by the Modern Languages Association.

FILMS

Two 16mm films showing good primary school teachers in action have been made for the Schools Council. *French from Eight* shows three teachers; one, who is bilingual, uses her own methods and materials; one, whose French was mainly acquired during the war, used 'Bonjour Line'; and the third, who has no formal qualification in French, uses 'En Avant'. *En Avant in Ebbw Vale* is an expanded version of the last part of *French from Eight.*

Both films are in 16mm colour and run for 30 minutes. Copies can be bought (approx. £50) or hired (£1.63) from the National Audio-Visual Aids Library, Paxton Place, Gipsy Road, London SE27 9SE (telephone: 01-670 4247). *French from Eight* may be seen at the Schools Council Project Information Centre. This copy may not be borrowed.

FURTHER INFORMATION

Copies of the two interim reports and of *En Avant,* the Nuffield Introductory French course, are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

FRENCH FROM EIGHT: A FILM ON TEACHING FRENCH IN THE PRIMARY SCHOOL (LA 08 02)

SHOT DURING: 1967–1968 **AGE RANGE:** 8–11 **GRANT:** £10,000

BACKGROUND

The first experiments in this country in the teaching of French to primary school children took place in Leeds and elsewhere in the early 1960s. Today many primary schools in England and Wales include French in their curriculum.

A pilot experiment in the teaching of French from eight to sixteen has been jointly sponsored by the Schools Council and the Nuffield Foundation. The aims of the scheme, which began in 1964, are to assess the advantages and problems of introducing French before the secondary stage and to investigate the most effective ways of teaching French to young children of all abilities. All the pupils who have been involved in the experiment are now in secondary schools. 13 areas have been involved in the scheme. For further details, see sheet LA 08 01, Evaluation of the French Pilot Scheme.

The French materials for children aged 8–13 were produced with a grant from the Nuffield Foundation; the production of the 13–16 materials has been financed by the Schools Council. For further details see sheet LA 13 01, the Modern Languages Project. There was no obligation upon the primary schools to use the Nuffield course *En Avant,* but in fact over 80% did so. The other most widely used course was *Bonjour Line.* The secondary stages of the course are used by the majority of the secondary schools in the scheme.

The Schools Council's role has been and continues to be to administer the scheme and to give continuing help and advice to the pilot areas. Help for teachers in pilot areas and elsewhere has chiefly been given by means of teachers' courses and conferences and by the work of the Council's Educational Adviser for Modern Languages, but the Modern Languages Committee of the Council thought that effective help could be given by means of a film which showed good primary school teachers of French in action – teachers of different linguistic abilities using a variety of materials and methods. *French from Eight* is that film and the Council hopes it will be of value not only to teachers already in schools but also to students at colleges of education on whom the ultimate success or failure of French in the primary schools will largely depend.

French from Eight shows three teachers at work: Mrs M. Lewis, a peripatetic teacher in West Sussex; Mr R.D. Britton, headmaster of the Pomphlett Junior School, Plymstock Nr. Plymouth; and Miss Lord of the Pontygof Junior School, Ebbw Vale.

Mrs Lewis is bilingual and uses her own methods and materials. She is shown in the film producing a very lively response from a large class of boys in their second year of learning French at a school in Chichester.

Mr Britton's French was mainly acquired during the war. He uses Part II of the *Bonjour Line* course with a class of about 40 10 year-old boys and girls in their third year of learning French. The excerpt shows a variety of activities and language practice developed by the teacher from the course material.

Miss Lord uses the Nuffield course *En Avant* with two classes, one in their second year of learning French and one in their third. Miss Lord has no formal qualification in French. She learnt the language for two years in a grammar school and has since attended local courses and a one-term course recommended for teachers in the pilot scheme. The excerpt shows group-work and ways in which French can be integrated with other parts of the curriculum.

A second film, *En Avant in Ebbw Vale,* an expanded version of the last part of *French from Eight,* is also available. It was commissioned by the Monmouthshire Education Committee and makes use of material shot for the original film but not included in it.

FILM DETAILS

French from Eight was made by Film Drama Limited, and was produced and directed by Michael Orrom.

Both films are distributed by the National Audio-Visual Aids Library, Paxton Place, Gipsy Road, London SE27 9SR (Telephone: 01-670 4247).

French from Eight (30 minutes, 16mm colour). Sale £50, hire £1.63

En Avant in Ebbw Vale (30 minutes, 16mm colour). Sale £45.50, hire £1.63 .

Notes for teachers are issued with each copy.

FURTHER INFORMATION

For further details of the Evaluation of the French Pilot Scheme see sheet LA 08 01. For further details of the Modern Languages Project see sheet LA 13 01. Copies of the films may be seen by arrangement at the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

T/P

CAMBRIDGE SCHOOL CLASSICS PROJECT (LA 11 01)

DIRECTOR: D.J. Morton

LOCATION: Cambridge University, 17 Panton Street, Cambridge. **Telephone:** Cambridge (0223) 61458

DURATION: 1966–1972 **AGE RANGE:** 11–16 **GRANT:** £48,245 (+ £48,245 from Nuffield Foundation).

AREA OF INQUIRY

This project was initially funded by the Nuffield Foundation and was given further support by the Schools Council some months after its inception. The need for a new look at the place of classics in the curriculum arose from the development of comprehensive education, reducing in many cases the scope for Latin and Greek in schools, and in addition a decreasing demand on the part of universities for O-level Latin or Greek as a compulsory requirement for admission to university courses.

The project's two main objectives have thus been:

1. to devise materials and methods for teaching pupils to *read* Latin more fluently, and to enable them to develop an understanding of Roman civilization and its values
2. to devise a classical foundation course in English which will bring the subject within range of pupils of all abilities and so make a contribution from the classics to the humanities area of general education.

PROCEDURE

Language Course. This is a linguistically based course leading to O-level, flexible enough to be taken in three, four or five years. It can also be used by sixth-formers who need O-level Latin. The newly-developed approach enables pupils to read continuous Latin from the start, progressing from specially written stories about people, places and events in the Roman world in the first century AD, to adaptations of original Latin, and finally to the original authors themselves. Much less grammar is formally presented than in traditional courses, and there is no translation from English to Latin.

The materials have been tested in 96 schools in England and Wales and have involved 4,500 pupils. It has been found that pupils of a wider ability range than is usually associated with Latin courses have successfully followed the new course and that a number of these have been diverted to a CSE classical studies syllabus rather than GCE O-level. As regards O-level, this is offered by the Southern Universities Joint Matriculation Board to all schools using the Cambridge Latin Course.

Classical Foundation Course. This is a non-linguistic course, entirely in English, which is designed to introduce Greek and Roman civilizations to pupils of all abilities at the lower end of the secondary age range. It is being devised by Mr Martin Forrest of the College of St. Matthias, Bristol in association with an advisory panel of teachers, through whom school trials of materials have been arranged.

MATERIALS

Publisher: Cambridge University Press, Bentley House, 200 Euston Road, London W1. from 1971. Prices given below are correct at time of going to press.

There are five units of varying length. The first three contain specially written passages of Latin. The last two are developemnts of Units I–III, linguistically and culturally, and contain selections from Roman authors.

Unit I based on life in Pompeii in AD 79. This will provide a term's work for those working to O-level in 3 years, more for those taking the course more slowly and consists of Stages 1–12.

Pupil's material – a wallet containing 12 pamphlets and a vocabulary	£1.20
For class and teacher – a handbook explaining the principles of the course and giving suggestions for the use of the material.	£1.00
– a tape of all the model sentences and a selection of the reading material	£4.39 (inc. p.tax)
– 60 colour slides of Pompeii and Herculaneum	£7.50

Unit II set in Alexandria and Britain. This will provide the second half of the first year's O-level course, and consists of stages 13–20.

Pupil's material – a wallet of 8 pamphlets in Latin, a vocabulary and a grammar.	£1.40
For class and teacher – a handbook	£1.12
–a tape	£4.74 (inc. p.tax)
–a set of 60 colour slides	£7.50

Unit III set in Bath, Chester and Rome. This covers the first part of the second year's work, though it can be used in the last term of the first year. Includes stages 21–31.

Pupil's material – a wallet of 11 pamphlets in Latin, a vocabulary and a grammar.	£1.65
For teacher and class – a handbook	£1.50 (Spring 1973)
– a set of colour slides	£3.50 approx.
– a tape	£3.50 approx. (Jan 1973).

Unit IV. The textual material consists of carefully chosen and edited selections from Pliny, Tacitus, Catullus and Ovid. The selections are organised round central themes to maintain the kind of unity achieved in the first three units. There is also a vocabulary pamphlet.

Pupil's material	About £1.20 (Oct. 1972)
Teacher's handbook	About £1.00 (Spring 1973)

Unit V. Two books for the pupil; the Latin text will consist of two long extracts from Tacitus and Virgil. This unit leads naturally to the reading of set texts in the O-level year.

Pupil's material	About £1.20 (March 1973)
Teacher's handbook	About £1.00 (Summer 1973)

O-level texts. Texts for the examination in 1973 are obtainable from the project office; those for the examination in 1974 will be published by the Cambridge University Press.

Foundation Course. Each package of material, enough for a group of up to six pupils, contains work information cards and picture cards. The work cards are also available separately as duplicator masters.

The first material to be published is based on Greek civilization and is on the following five themes:

Foundation Course Unit i: Troy and the Early Greeks
A picture of life at the time of the Trojan War with visual and written material on palaces, ships, seafaring, war and domestic life. The pictures include photographs, some in colour, of surviving works of art, archaeological remains and sites, and artists reconstructions.

Pupil's material	£2.20
Work card duplicator masters	£6.00

Foundation Course Unit II: The Gods of Mount Olympus
Resource material on the Greek Gods dealing with their origins and attributes and some of the myths which surround them. The picture cards show how Greek artists and sculptors depicted the Gods and include modern artists' impressions and photographs of temples and sites.

Pupil's materials	£2.20
Work card duplicator masters	£6.00

Foundation Course (Unit III: Greek Religion (January 1973)
Foundation Course Unit IV: Athens, Sparta and Persia (January 1973)
Foundation Course Unit V: Greek Festivals (January 1973)

A *Teacher's Handbook* accompanies the five sets of material and shows how they can be used in different situations and with different objectives. It also gives detailed guidance to the teacher on sources and selection of additional material and techniques of presentation. About £1.20

Roman based material is being planned, but will not be available for at least two years.

EXAMINATIONS

GCE O-level is offered to all schools taking the Cambridge Latin Course by the Southern Universities Joint Matriculation Board, Cotham Road, Bristol BS6 6DD. In 1972, the third year it was available, it was taken by over 2000 pupils.

DIFFUSION AND TRAINING

The project produces a newsletter which is distributed by the Council and gives information on publications and on courses and conferences organised by the project. There are 17 area group leaders who have extensive experience of teaching the project's materials and who are prepared to discuss the course and answer questions.

EVALUATION

Evaluator: Miss Pat Story

The project's evaluation officer has been concerned with assessing the progress of the Latin course in schools using experimental material, and with helping to revise material for publication in the light of suggestions and criticisms made by the schools.

An account of the evaluation of this project is given in a paper by Pat Story, one of twelve contributions to a symposium of evaluation studies, to be published in the Schools Council Research Studies series by Macmillan Education in 1973.

RELEVANT PAPERS AND PUBLICATIONS

Bulletin No 2: *A non-Linguistic Foundation Course* 25p from the project
David Morton 'Tempora mutantur' *Dialogue* 3, June 1969
'The Cambridge School Classics Project' *Journal of the Association of Assistant Mistresses,* Autumn 1971
Anna Sproule 'Latin Revived' *Resources*, March 1972.

FURTHER INFORMATION

Further information is available from Miss Story at the project.

All published materials and items listed above are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

T/P

MODERN LANGUAGES PROJECT (LA 13 01)

(formerly the Nuffield Foreign Languages Teaching Materials Project)

DIRECTOR: **Professor A. Spicer** (to December 1969)
D. Rowlands (from January 1970)

LOCATION: University of York, Micklegate House, Micklegate, York YO1 1JZ
Telephone: York (0904) 27844

DURATION: 1963–1973 (Schools Council support from 1967)

AGE RANGE: French 8–16 (Schools Council: 13–16) Spanish, Russian and German 11–16 (Schools Council: 13–16)

GRANT: £831,000

AREA OF INQUIRY

The project was established to continue the work begun in 1963 by the Nuffield Foreign Languages Teaching Materials project. At that time the Foundation commissioned French teaching materials for the age range 8–13 and, over the next two years, the scope of the project was extended to include the provision of materials in Spanish, Russian and German for the age range 11–13. As each section of the project completed the work sponsored by the Foundation, the Schools Council assumed financial responsibility to enable the project to produce continuation materials in French, Spanish, German and Russian for the age range 13–16. The project is attached to the Language Teaching Centre of the University of York, which is directed by Professor E.W. Hawkins.

The fundamental objective of the materials in all languages is to teach pupils to understand, speak, read and write the language, in that order, rather than to teach them about it. Early lessons are purely oral and aim at fluent control of a limited number of structures of the language, rather than a large vocabulary. Reading and writing are introduced in subsequent stages, and the emphasis on these skills increases as the courses progress. Teaching points are carefully graded and the language introduced is selected with reference to frequency, 'teachability', usefulness in everyday situations and suitability to the pupils' age and interests. Pupils are also introduced to the culture and way of life of the people whose language they are learning.

MATERIALS

French. *Section Organiser: M. Buckby*

The introductory French course *En Avant* is a five year course which was intended for use in the last three years of the primary school and the first two years of the secondary school with pupils of all abilities. It is also suitable, with certain modifications, for pupils beginning the study of French at the age of nine in primary or middle schools. The course provides a variety of teaching materials which, *in the primary phase,* have been designed for use with large classes and by non-specialist teachers of French.

The materials, details of which are given below, were tested in a large number of schools and revised before final publication. Stages 1A and 1B are currently undergoing further revision in the light of comments from teachers since the materials were published. This work is being undertaken by the Materials Development Unit of the University of York and the revised Stage 1 will be publsihed in 1974.

The 13–16 continuation materials are being published as a single system of materials with a common core element and a range of additional materials to cater for both the more and the less able. These will be published under the title *A Votre Avis* in four parts.

Published materials – French

A. *En Avant* – Nuffield Introductory French Course – published by E.J. Arnold and Son Limited, Butterley Street, Leeds LS10 1AX from whom further details and sample materials are available.

N.B. Prices include teacher's books and pupils' materials and are correct at time of going to press. Most component parts are also available separately.

Primary Stages

Stage 1A: 20 lesson units, including teacher's book, figurines, flashcards, and 12 tapes. £27.90 + £5.38 p.tax.

Stage 1B: 20 lesson units, including teacher's book, figurines, flashcards, wall charts and 12 tapes. £21.94 + £4.42 p.tax.

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Stage 2: 20 lesson units, incldiuing teacher's book, readers, posters, reading cards, display board and 10 tapes. £35.55 + £4.68 p.tax.

Transition Stage
Stage 3: 15 double lesron units, including teacher's book, readers, reading sheets, workbooks, posters, wall charts, figurines, maps, games, assignment cards and 9 tapes. £45.15 + £4.26 p.tax.

Secondary Stages
Stage 4A: including pupils' and teacher's books, readers, 4 tapes, 7 filmstrips. £46.16 + £1.27 p.tax.

Stage 4B: including teacher's and pupils' books, 8 filmstrips, 5 tapes and 7 readers. £45.95 + £1.40 p.tax.

B. *A Votre Avis* – Schools Council continuation material 13–16 to be published by E.J. Arnold.

Stage 5: including pupils' book, teacher's book, 2 grammar books, 2 tapes, 2 filmstrips. September 1972.

Stage 6 is expected in Spring 1973, and Stages 7 and 8 in September 1973.

German. *Section Organiser: A. Peck*

This course, intended for average and above average children, is designed to last for five years (11–16), at approximately four 40-minute periods a week, although gifted pupils could probably complete the course in four years.

The Nuffield Introductory Course – *Vorwarts* Stages 1A, 1B, 2A, 2B – intended for the first two years of secondary school, has been published. The Schools Council continuation materials are currently being tested in 30 schools and Stage 3 will be publsihed in September 1972.

Published materials – German

Vorwarts – published by E.J. Arnold and Son Ltd., Butterley Street, Leeds LS10 1AX from whom further details and sample materials are available.

N.B. Prices include teacher's books and one copy of each of the pupils' books and are correct at time of going to press.

Stage 1A: (about 20 weeks' work) including teacher's book, pupils' work book, 6 tapes, 6 filmstrips, flashcards, wall maps. £30.37 + £2.51 p.tax. Workbooks 13p each.

Stage 1B: (about 20 weeks' work) including teacher's book, pupils' reading, writing and work books, flashcards, 5 tapes, 8 filmstrips, wall map, railway timetable. £37.30 + £2.70 p.tax. Reading books 10p each; reading and writing books 28p each; workbooks 28p each.

Stage 2A: including teacher's book, pupils' readers and writing books, 5 tapes, 8 filmstrips, flashcards, wall maps. £40.65 + £2.71 p.tax. Readers 15p–20p each; reading and writing books 45p–55p each.

Stage 2B: including teacher's book, pupils' readers and writing books, 6 tapes, 8 filmstrips, flashcards, wall map. £35.70 + £2.85 p.tax. Reading and writing books 61p each; readers 14p–18p each.

Schools Council continuation materials (13–16) will be published by E.J. Arnold and provisional dates are as follows: *Stage 3:* September 1972, *Stage 4:* March 1973, *Stage 5:* October 1973.

Russian. *Section Organiser: D. Rix*

This course, as with German, is intended for average and above average ability children and is designed to last for five years, although gifted pupils could complete the course in four years.

The Nuffield Introductory Course – *Vperyod!* Stages 1, 2 and 3 – intended for the first two years of secondary school has been published; Stage 4 of the Schools Council continuation materials was published in 1971; Stage 5 will be published in October 1972.

Published materials – Russian

Vperyod! – Stages 1, 2 and 3 published by Macmillan Education, Houndmills, Basingstoke, Hants from whom further details and sample materials are available.

N.B. Prices include a teacher's book, but no pupils' material. All components can be purchased separately. Prices are correct at time of going to press.

Schools Council continuation materials, Stages 4 & 5, are published by E.J. Arnold and Son Ltd., Butterley Street, Leeds LS10 1AX.

Stage 1: (18 introductory lessons and 12 lesson units) including teacher's book, pupils' book, 10 filmstrips, 7 tapes, flashcards. £51.95 + £6.31 p.tax Pupils' workbooks 55p each.

Stage 2: (12 lesson units) including teacher's book, pupils' book, 7 tapes, 10 filmstrips, flashcards, playing cards, cardboard money. £54.80 + £6.62 p.tax. Pupils' books 66p each.

Stage 3: (12 lesson units) including teacher's book, pupils' book, 12 filmstrips, 6 tapes, flashcards, £46.10 + £4.04 p.tax. Pupils' books 71p each.

Schools Council continuation materials (13–16) are published by E.J. Arnold:

Stage 4: includes teacher's book, pupils' books, 5 tapes, 3 filmstrips. £25.60 + £2.92 p.tax. Readers (2) £1.10 each. Presentation Books (5) 45p each. Content Summary Chart 50p.

Stage 5: October 1972.

Spanish. *Section Organiser: R. Clarke*

This course, intended for average and below average ability children is designed to last for five years at approximately four 40-minute periods a week.

The Nuffield Introductory Course – *Adelante* Stages 1, 2A, 2B – intended for the first two years of secondary school has been published; Stage 3 of the Schools Council continuation materials were published in 1971 and Stage 4 will be published in September 1972.

Published materials – Spanish

Adelante – Stages 1, 2A and 2B published by Macmillan Education, Houndmills, Basingstoke, Hants, from whom further details and sample materials are available.

N.B. Prices include a teacher's book but no pupils' material. All components can be purchased separately. Prices are correct at time of going to press. Schools Council continuation materials, Stages 3 and 4, are published by E.J. Arnold and Son Ltd., Butterley Street, Leeds LS10 1AX.

Stage 1: (20 lesson units) including teacher's book, figurines, flashcards, posters, display board and teazle discs, 11 tapes. £44.00 + £7.47 p.tax.

Stage 2A: (10 lesson units) including teacher's book, pupils' readers and workbooks, 6 tapes, flashcards, 8 filmstrips, wall map. £46.75 + £3.95 p.tax. Readers 30p each. Workbooks 19p each.

Stages 2B: (8 lesson units) including teacher's book, pupils' readers and workbooks, 8 filmstrips, 10 flashcards, 4 tapes. £39.15 + £2.71 p.tax. Readers 30p each. Workbooks 19p each.

Schools Council continuation materials (13–16) are published by E.J. Arnold

Stage 3: including teacher's book, 1 each of 10 magazines, 1 each of 4 readers, 5 tapes, grammar book. £30.75 + £2.00 p.tax. Magazines 90p per pack of 10; readers 20–23p each.

Stage 4: September 1972.

EXAMINATIONS AND ASSESSMENT

Arrangements have been made with the GCE Examining Boards for pupils in the schools testing draft materials to take special O-level examinations in French, Spanish, Russian and German. It is hoped that ultimately examinations of a similar type will be available to any pupils and discussions are currently in progress with the Examining Boards. The Joint Matriculation Board has prepared the special Spanish examination; the Cambridge Local Examinations Syndicate the examination in Russian; the Associated Examining Board the examination in German; and the Oxford Delegacy is responsible for the examination in French. The division of marks has been roughly; writing 25%, oral 25%, listening 20%, reading 20%, and the special project 10%. Copies of the draft syllabuses of the four language courses are available from the project. Further details of the examinations are given in *Micklegate* 3, also available from the project.

A number of teachers in trial schools have collaborated to produce Mode 3 CSE examinations in Russian, Spanish, German and French which they have presented individually to their Boards.

The Materials Development Unit is producing in addition a number of performance tests for each Stage of the published materials, to enable teachers to assess their pupils' progress in listening, speaking, reading and writing. Each kit contains a teacher's instruction booklet, a tape and a class set of non-expendable pupils' material. Those currently available are:-

En Avant	Stage 1A	Test kit: £3.66 + 14p p.tax. Additional booklets: Unit Test 30p per 10 Listening Test 24p per 10 Tape: 45p + 9p p.tax.
	Stage 1B	Test kit: £4.08 + 3p p.tax. Additional booklets: 30p per 10
Adelante	Stage 1	Test kit: £3.72 + 16p p.tax. Additional booklets: 32p per 10
	Stage 2A	Test kit: £4.20 + 13p p.tax. Additional vocabulary booklets: 45p per 10 Question booklets: 25p per 10

Full details are available from the Materials Development Unit, Micklegate House, Micklegate, York.

EVALUATION

The materials are all tested in trial schools and revised in the light of teachers' comments, questionnaires and visits to schools by the members of the project's evaluation section. See also Evaluation of French Pilot Scheme (LA 08 01).

TRAINING AND DIFFUSION

The project has not yet organised a large-scale diffusion programme, apart from courses for teachers in trial schools. Since the stress on aural and oral language teaching calls for teachers who are fairly fluent in their respective language, local courses and teachers' workshops at teachers' centres have proved of very considerable benefit, both at primary and secondary level. A course for secondary school teachers of French in Associate Areas linked with the French Pilot Scheme will be held at the University of York from 1st–6th January 1973.

RELEVANT PUBLICATIONS

Schools Council *French in the Primary School* (Working Paper 8), HMSO 1966 42½p

Schools Council *Development of modern language teaching in secondary schools* (Working Paper 19), HMSO 1969 22½p

'Modern Languages: Nuffield and Schools Council' *Dialogue* 5, February 1970

M. Buckby and D. Grant *Faites Vos Jeux*, Materials Development Unit, Micklegate House, Micklegate, York. £0.97. A book of games and activities for the early years of French in primary and secondary schools

D.G. Rowlands (ed) *Group Work in Modern Language Teaching*, Materials Development Unit, £1.00.

Clare Burstall *French from Eight* NFER 1968 75p

Clare Burstall *French in the Primary School: Attitudes and Achievement* NFER 1970 £3.25

Micklegate No 1 September 1970, No 2 March 1971, No 3 January 1972. A newsletter available free from the project.

A list of project publications, tests, reports and occasional papers is available from the Publications Officer, Modern Languages Project, Micklegate House, Micklegate, York YO1 1JZ.

FILMS

Two films showing good primary school teachers in action were made in 1967. *French from Eight*, made for the Schools Council, shows three teachers; one, whose French was mainly acquired during the war, uses *Bonjour Line*, one, who is bilingual, uses her own methods and materials, and the third, who has no formal qualifications in French, uses *En Avant*. *En Avant in Ebbw Vale* is an expanded version of the last part of *French from Eight*.

Both films are in 16mm colour and run for 30 minutes. Copies can be bought (approx. £50) or hired (£1.63) from the National Audio-Visual Aids Library, Paxton Place, Gipsy Road, London SE17 9SR (telephone: 01-670 4247).

FURTHER INFORMATION

All items listed above and copies of all published materials are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

Further information is available from the project.

FREE TO MOVE: A SERIES OF FILMS ON PHYSICAL EDUCATION IN THE PRIMARY SCHOOL (CR 03 01)

ADVISER: **Miss Eugenie Fraser**, Physical Education Adviser for Hampshire

SHOT DURING: 1969–1970 **AGE RANGE:** 3–11 **GRANT:** £17,500

These films were planned by a Working Party on physical education as the most suitable means of conveying the basic principles and philosophy underlying physical education, and of illustrating good practice. A large number of schools of all types throughout England and Wales were visited. The eight selected for use in the films represent schools in old and in new buildings with varying facilities, in differing areas and with classes of different ages.

The main film, *Free to Move*, is primarily directed towards teachers and students to give help in the practical teaching situation. Physical education is concerned not only with physical well-being but with the education of the child as a whole, and the film illustrates the ingredients of a varied and widely based programme and the way in which skilled teachers extend the resources of their children through movement. It shows, too, how as the child moves up from the nursery school the teacher can harness the drive which we call play and channel it in such a way that the child becomes more aware, more skilful and gains more knowledge of himself through this experience.

The early part of the film shows young children moving in a variety of ways, motivated by apparatus and natural obstacles such as walls and trees, by the desire to explore game-like situations, to move in water, or to express themselves through dance or dramatic play.

Examples of the results of good teaching in swimming and games with older children lead into the second part of the film. This is devoted to lessons with infant and junior children, with an emphasis on gymnastics and dance; the teachers concerned show the way in which, by observation and sensitive guidance, they are able to achieve a high level of skill and involvement. Each of these teachers shows how discoveries made by the children in their physical education lessons have sparked off further exploration in the classroom and vice versa. For example, one class relate their movements to mathematics in a P.E. lesson involving bilateral and rotational symmetry; another make models of animals, write about them and then act out their movements.

Three further short films have subsequently been prepared incorporating material not used in *Free to Move*. They illustrate the teacher's role in different sections of a balanced physical education programme.

Games in the Primary School opens with an infant lesson and continues with a junior lesson involving group practices and small side games using the fundamental skills of receiving, passing, propelling or striking a ball.

Gymnastics in the Primary School shows how children explore their own physical capabilities. In the early part of the film infants are seen freely using climbing apparatus in the playground, then in a class discovering different ways of rolling; later the teacher of a junior class encourages children to extend their movement on the floor and on apparatus.

Swimming in the Primary School covers three types of lesson, one where beginners are building up confidence in the water, one for children of mixed ability, and one in which children who are all capable swimmers work on individual and group schedules.

A grant has been given for the production of a further film on *Dance* to be made in the academic year 1972–1973.

FILM DETAILS

The films were made by Southern Film Productions, directed by Brian Lewis and produced by Derek Monk and Ted Channell.

The four films are distributed by the National Audio-Visual Aids Library, Paxton Place, Gipsy Road, London SE27 9SR. (Telephone: 01-670 4247).

Free to Move (35 minutes, 16mm colour). Sale £87.50; hire £2.50 for one day, 75p per extra day, plus postage.

Games in the Primary School (14 minutes, 16mm colour). Sale £50; hire £2.00 for one day, 75p per extra day, plus postage.

Gymnastics in the Primary School (18 minutes, 16mm colour). Sale £70; hire £2.00 for one day, 75p per extra day, plus postage.

Swimming in the Primary School (18 minutes, , 6mm colour). Sale £70; hire £2.00 for one day, 75p per extra day, plus postage.

in differing areas and with classes of different ages.

The main film, *Free to Move,* is primarily directed towards teachers and students to give help in the practical teaching situation. Physical education is concerned not only with physical well-being but with the education of the child as a whole, and the film illustrates the ingredients of a varied and widely based programme and the way in which skilled teachers extend the resources of their children through movement. It shows, too, how as the child moves up from the nursery school the teacher can harness the drive which we call play and channel it in such a way that the child becomes more aware, more skilful and gains more knowledge of himself through this experience.

The early part of the film shows young children moving in a variety of ways, motivated by apparatus and natural obstacles such as walls and trees, by the desire to explore game-like situations, to move in water, or to express themselves through dance or dramatic play.

Examples of the results of good teaching in swimming and games with older children lead into the second part of the film. This is devoted to lessons with infant and junior children, with an emphasis on gymnastics and dance; the teachers concerned show the way in which, by observation and sensitive guidance, they are able to achieve a high level of skill and involvement. Each of these teachers shows how discoveries made by the children in their physical education lessons have sparked off further exploration in the classroom and vice versa. For example, one class relate their movements to mathematics in a P.E. lesson involving bilateral and rotational symmetry; another make models of animals, write about them and then act out their movements.

Three further short films have subsequently been prepared incorporating material not used in *Free to Move.* They illustrate the teacher's role in different sections of a balanced physical education programme.

Games in the Primary School opens with an infant lesson and continues with a junior lesson involving group practices and small side games using the fundamental skills of receiving, passing, propelling or striking a ball.

Gymnastics in the Primary School shows how children explore their own physical capabilities. In the early part of the film infants are seen freely using climbing apparatus in the playground, then in a class discovering different ways of rolling; later the teacher of a junior class encourages children to extend their movement on the floor and on apparatus.

Swimming in the Primary School covers three types of lesson, one where beginners are building up confidence in the water, one for children of mixed ability, and one in which children who are all capable swimmers work on individual and group schedules.

A grant has been given for the production of a further film on *Dance* to be made in the academic year 1972–1973.

FILM DETAILS

The films were made by Southern Film Productions, directed by Brian Lewis and produced by Derek Monk and Ted Channell.

The four films are distributed by the National Audio-Visual Aids Library, Paxton Place, Gipsy Road, London SE27 9SR. (Telephone: 01-670 4247).

Free to Move (35 minutes, 16mm colour). Sale £87.50; hire £2.50 for one day, 75p per extra day, plus postage.

Games in the Primary School (14 minutes, 16mm colour). Sale £50; hire £2.00 for one day, 75p per extra day, plus postage.

Gymnastics in the Primary School (18 minutes, 16mm colour). Sale £70; hire £2.00 for one day, 75p per extra day, plus postage.

Swimming in the Primary School (18 minutes, , 6mm colour). Sale £70; hire £2.00 for one day, 75p per extra day, plus postage.

A booklet accompanies the films, extra copies of which are available for 15p.

Details of the availability of *Dance* will be announced in due course.

Copies for sale or hire in the USA from the Film Bureau, 267 West 25th Street, New York NY 10001.

RELEVANT PUBLICATIONS

E.R. Fraser 'The Schools Council P.E. Film' *Dialogue* 4, November 1969

FURTHER INFORMATION

The films may be seen by arrangement only at the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL. THESE COPIES MAY NOT BE LOANED.

JUNE 1972

T/R

MUSIC EDUCATION FOR YOUNG CHILDREN (CR 03 02)

DIRECTOR: Dr A Bentley **DEPUTY DIRECTOR:** Dr R.M. Thackray

LOCATION: Music Section, School of Education, University of Reading, London Road, Reading RG1 5AQ. **Telephone:** Reading (0734) 85234.

DURATION: 1970–1975 **AGE RANGE:** 3–11 **GRANT:** £38,500

AREA OF INQUIRY

This research and development project was established with the following aims:

1. to increase understanding of how children learn in music
2. to clarify and define the aims of music education for nursery and primary school children
3. to produce guides and materials which will help teachers to achieve these aims.

PROCEDURE

During the first year a preliminary survey of the present state of music education in this country was carried out. Visits were made to a wide variety of schools, and information and opinions collected by means of interviews, discussions and questionnaires from headteachers, general classroom teachers, specialist teachers, college lecturers, music advisers and children themselves. The overall impression gained from this survey was of widely differing approaches, conditions and standards of achievement at all levels, lack of general agreement over aims and emphases in music education, many controversial issues and a great need for clear simple guidance for less experienced teachers in the teaching of basic musical skills and understanding. One of the objectives of the project, therefore, is to devise a 'core' curriculum concentrating on those aspects and skills that are considered to be basic or essential to any progressive development in the practice of music.

Other activities include an investigation into the attitudes of children to music and to different aspects of the school music programme; experimental work on the development of basic music concepts; a longitudinal study of the development of music abilities in children aged 8–12, to be extended over several years; and a special study of music in the nursery school.

A number of teachers' groups have been established, two based at Reading, others at teachers' centres over a wider area, to discuss matters relating to the work of the project, to assist the project's research by undertaking particular pieces of work in their schools, and to help in the development and testing of trial materials.

MATERIALS

A series of twelve programmes has been devised for use with children in infant schools. The series aims to provide an introduction to music by means of tape-recorded programmes which involve active participation on the part of both children and teacher.

An outline guide concerned with the early stages of music reading and vocal training has also been produced for trial purposes.

Provisional statements of the principles, aims and objectives of music education of young children have been drawn up.

Future plans include the continuation of the experimental work and the development of further materials.

DIFFUSION

At present diffusion is limited mainly to the teachers' groups working directly with the project team. Suggested aims have been widely circulated and published (*Music in Education* November/December 1971 and *Music Teacher* February 1972) for discussion and comment by teachers.

RELEVANT PAPERS AND PUBLICATIONS

First Report and plans for the future. February 1971. A limited number of copies of this report, prepared by the project for its Consultative Committee, are available from the Schools Council Project Information Centre.

Rupert Thackray. A series of six articles in *Child Education,* October 1971 and May to September, 1972

Rupert Thackray Attitudes to Music in School *Education for Teaching,* Spring 1972

Rupert Thackray 'Schools Council Project - Interim Report' *Music Teacher,* December 1971

FURTHER INFORMATION is available from the project director, or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

R/T

ART AND CRAFT EDUCATION 8–13 (CR 08 01)

DIRECTORS: **Miss Audrey Martin, Dr Renee Marcouse, M. Laxton.** (**Dr Charity James** until 1970 and **Miss Seonaid Robertson** until 1972)

LOCATION: Goldsmiths' College, University of London, 7 Dixon Road, New Cross, SE14 6NW
Telephone: 01-692 5858

DURATION: 1969–1972 **AGE RANGE:** 8–13 **GRANT:** £40,650

AREA OF INQUIRY

The aims of the project were:

1. to make known and co-ordinate advances in art and craft teaching, in particular bridging the gap between primary and secondary schools
2. to consider the contribution which arts and craft as an autonomous study can make to children's growth and also their contribution to integrated studies
3. to undertake pilot experiments in the in-service education of teachers.

PROCEDURE

The team decided that its main aim should be to discover and identify, through careful observation, the nature of children's creative and inventive experience with materials, and from this study to reach a finer understanding of the conditions which encourage their creative and inventive growth.

The team has concentrated on examining the work of children in varying situations, rather than on any models of curriculum. It has studied what is actually going on in classrooms, and using cameras and tape-recorders has recorded the activities of children in primary, middle and secondary schools.

These records form the basis of materials (sets of slides with synchronised taped commentary) to be used to encourage discussion and self-appraisal by those concerned with art and craft education. The team has used these sets in discussions with groups of teachers in teachers' centres and elsewhere, and it is hoped that this approach to curriculum development will contribute to the work already being undertaken in in-service training.

MATERIALS

Publisher: Van Nostrand Rheinhold Co. Ltd., 25–8 Buckingham Gate, London SW1. From 1973.

An illustrated background handbook for teachers has been prepared including sections on the child (development, patterns of behaviour, personal ways of working, personal ideas); the teacher (art and craft within the curriculum, teaching styles); the potentialities of the environment (both school and local environment); some experiments; implications and recommendations (materials, buildings, equipment).

Three supporting booklets are also in preparation on *Natural Materials, Resistant Materials* and *Looking and Seeing in Museums.*

There are also a number of tape/slide sequences intended as a focus for discussion in colleges and teachers' centres on such topics as *Imagining with Clay, Whose Objectives, Phantasy, Personal Adornment, Waste Materials, Resistant Materials, Looking and Seeing in Museums,* etc.

RELEVANT PAPERS AND PUBLICATIONS

M. Laxton 'A development project on Middle School Craft', *Studies in Craft Education* January 1970
'Introducing Art and Craft Education 8–13' *Dialogue* 5, February 1970
K. Gentle 'Art and Craft Education 8–13 year olds' *Art and Craft* July 1970
'Art and Craft Education 8–13' *Ideas* January 1971
'The Middle Years' *Teachers World Art & Craft Supplement,* 12 February 1971
'Art and Craft: A point of balance' *Teachers World*, 24 December 1971.

FURTHER INFORMATION

Copies of all publications listed above and materials when published are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

Further information from Mr Michael Laxton, Handicraft Department, Goldsmiths' College, New Cross, London SE14 or from the Schools Council Project Information Centre.

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JUNE 1972

R

PHYSICAL EDUCATION IN SECONDARY SCHOOLS (CR11 01)

DIRECTOR: Dr J.E. Kane

LOCATION: St. Mary's College of Education, Strawberry Hill, Twickenham, Middlesex.
Telephone: 01-892 0051

DURATION: 1970–1971 **AGE RANGE:** 11–18 **GRANT:** £8,000

AREA OF INQUIRY

This project was established on the recommendation of the Secondary Working Party of the Physical Education Committee. It was felt that before any fundamental thinking could be undertaken with a view to assessing the value and purpose of current curricular in physical education, it was vital to have up-to-date information on present trends in schools.

The aims of the project were:

1. to discover the facts about the place and the programme of physical education in secondary schools
2. to consider how far present practices are related to the aims which were published in *Dialogue* 1, page 15, and circulated to interested professional organisations
3. to provide information of these practices to those concerned with physical education
4. to use the information as a basis for a future curriculum development project.

Typical items on which information was needed were the degree of compulsion to take part in some form of physical education at different stages in the secondary school; period allocation in school timetables; the introduction and range of option; out of school activities; staffing and facilities; the criteria by which the physical education curriculum is constructed; attitudes and motivation.

PROCEDURE

A series of three questionnaires (one for headteachers, one for heads of department and one for other PE teachers) was prepared to collect information about the curriculum structure, the objectives being pursued, the methods and materials being used, and the opinions and values held by teachers. These questionnaires were administered to a one-in-ten stratified random sample of secondary schools in England and Wales and the results analysed.

FINAL PUBLICATION

The report will be published in due course. It includes details of the data preparation and analyses, details of the average amount of time per week spent on physical education, a survey of the background and training of physical education teachers and their extra-curricular duties, and an analysis of factors that were considered important in the planning and operation of the curriculum in physical education. In this last section an attempt is made to consider evidence which gives teachers' reactions to aspects of the curriculum process from the identification and rating of objectives through the consideration of such modifying factors as facilities, content, teaching styles and opportunities for the pupils' choice, to the perceived effect of the physical education programme on the pupils.

RELEVANT PUBLICATIONS

'Miscellany – Comment on P.E. Wanted' *Dialogue* 1, September 1968.

FURTHER INFORMATION

The report, when published, will be available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

T/P

MUSIC IN THE SECONDARY SCHOOL CURRICULUM (CR 11 02)

DIRECTOR: Dr John Paynter

LOCATION: Department of Music, University of York, Heslington, York YO1 5DD.
Telephone: York (0904) 59861 Ext. 5757

DURATION: 1973–1978 **AGE RANGE:** 11–18 **GRANT:** £40,000

AREA OF INQUIRY

Although music has always been included in the school curriculum its position in relation to the overall aims of general education has never been very carefully defined. It is now recognised that the education of the feelings deserves as much attention as any other aspect of general education. This is an area in which music can play a very significant role. There are considerable sociological implications, not only because of the recreative opportunities that music affords but also because educators are acutely aware of people's need of self realisation. The project aims to define more clearly the place of music in the secondary school curriculum by:

1. developing new principles for school music that would take account of both interpretative and creative facets
2. widening the impact of the new principles through the production of guides and teaching materials.

PROCEDURE

Following initial contact with some 40 schools, including both urban and rural schools drawn from all types of school operating in the secondary sector, contact with participating teachers will begin with short courses, in which the ideas and methods will be introduced and explored in practical sessions after which their implementation in the schools will be discussed. The teachers will then organise work with pupils in their own schools along the lines agreed at the initial meetings. The teachers' groups will reconvene from time to time to discuss the progress of the work in individual schools. Arising from these discussions, materials and guides will be produced to take the work on further.

MATERIALS

The aim is to develop methods of working which will give music teachers opportunities to make a greater contribution to the overall policies of general education. To this end the project will produce:

1. teachers' guides
2. films of new methods in operation
3. material on film and tape for use by teachers and pupils
4. written and illustrated material for use by pupils.

RELEVANT PAPERS AND PUBLICATIONS

John Paynter and Peter Aston *Sound and Silence,* CUP 1970
John Paynter *Hear and Now,* Universal Edition 1972
Schools Council *Music and the young school leaver* (Working Paper 35), Evans/Methuen Educational, 1971.

FURTHER INFORMATION is available after September 1973 from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

N.B. THIS PROJECT WILL NOT START UNTIL SEPTEMBER 1973.

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R

ARTS AND THE ADOLESCENT (CR 13 01)

DIRECTOR: P. Cox **PROJECT ORGANISER:** M. Ross
RESEARCH DIRECTOR: R.W. Witkin

LOCATION: Institute of Education, University of Exeter, Gandy Street, Exeter EX4 3QL.
Telephone: Exeter (0392) 78521

DURATION: 1968–1972 **AGE RANGE:** 13–16+ **GRANT:** £41,500

AREA OF INQUIRY

This curriculum study was set up in 1968 as part of the Schools Council's programme for the young school leaver, to discover

1. what methods and materials in the fields of visual art, music, dance, drama and poetry are most likely to elicit a lively response among young people
2. how young people view their own involvement in the arts both in and out of school and how much connection there is between these two forms of often disparate activity
3. what connection can be made and how much transfer of interest is possible, between one art and another and between each art and other subjects in the curriculum.

PROCEDURE

The work of the project has been constructed in three complementary phases:

1. research into all aspects of arts education
2. organisation of these facts in a manner that is both effective and relevant to the teaching of the arts in schools
3. dissemination of such reports or curriculum materials as are produced within the context of a teacher-pupil dialogue.

Primary - or original - research has included formal research by means of questionnaires and interviews in 36 pilot schools and detailed depth studies have been made in six schools where a team member has spent two weeks observing arts lessons, interviewing pupils and staff and administering questionnaires and a pupils' creativity test. The project has sought information about what takes place in arts lessons and why, about the priorities and attitudes of arts teachers and pupils, the place of the arts in our schools and in the lives of children generally, and finally about the formal structure of the school, methods of teaching and their comparative effectiveness. There has also been less formal research by letter and visit to assess attitudes, opinions and problems of people working in various aspects of arts education.

Secondary research has covered the extraction of relevant data from statistical reports, educational pamphlets and learned journals.

Organisation of facts has been guided by a conceptual framework, within which the project has sought to establish a viewpoint on what should be done about the teaching of the arts in schools and how it relates to all else within the life of the child. Using Piaget as a basic model, the arts curricula in schools are considered as the means whereby the child's 'intelligence of feeling' is made to grow.

FINAL PUBLICATION

A final report is in preparation, which is in two parts: a general review of the position of the arts in education, together with a detailed analysis of the research programme. This should be published during 1973.

RELEVANT PAPERS AND PUBLICATIONS

R.W. Witkin 'Social Class Influence on the amount and type of Positive Evaluation of School Lessons' *Sociology*, Vol 5 No 2, May 1971.

FURTHER INFORMATION is available from Mr Malcolm Ross, Lecturer in Education, University of Exeter Institute of Education, Gandy Street, Exeter EX4 3QL or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

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T/P

DESIGN AND CRAFT EDUCATION (CR 13 02)

DIRECTOR: Professor S. John Eggleston **RESEARCH FELLOWS:** A.R. Pemberton and D. Taberner

LOCATION: University of Keele, Department of Education, Keele ST5 5BG **Telephone:** Keele Park (0782 71) 371.

DURATION: 1968–1973 **AGE RANGE:** 13–16+ **GRANT:** £60,850

AREA OF INQUIRY

The project, previously known as the Research and Development Project in Handicraft, is examining an approach to education in which pupils, particularly those who will be spending an extra year in full education, using tools and materials are enabled to explore the adult world.

The development project was set up as a result of a feasibility study which took as its main areas of concern:

1. the identification and classification of educational objectives in handicraft teaching
2. a survey of the range of handicraft activities currently being undertaken in secondary schools, in order to identify the most promising methods of attaining educational objectives
3. an examination of possible methods of validating the effectiveness of the new and existing handicraft curricula in attaining educational objectives.

This study was subsequently published as a Schools Council Working Paper 26 *Education through the use of materials.*

PROCEDURE

The workshop based project is intended to give young people tangible means of expressing themselves at home and at work, in community service and in leisure, to help them develop and explore the range of options open to them and the capacity to make the decisions arising from this. The project is not developing a 'course' as such, but a selection of stimulus materials for teachers. These are based on a design process or other problem-solving approach so that the traditional emphasis on doing and making in school workshops and studies is joined by a parallel emphasis on thinking. Not only will students be undertaking skilled activities but they will also be performing diagnostic and creative roles. Much of the work at trial stage has involved the co-operation of teachers not only in the 'materials' subjects, but also in the humanities and the sciences. The project is working in five main areas:

Materials Discovery and Design. The development of the design process upon which this section is based, is fundamental to the project's thinking. Thus given a problem, such as the need of a disabled person for a simple piece of equipment that will enable him to perform a particular action, students are encouraged to identify and specify the problem e.g. what is it for, what materials are advisable, accept the restraints, engage in predesign and research discussion with other students and teachers, produce models in card, clay etc., consolidate workable solutions into controlled areas of manufacture, discuss and modify, and finally produce a solution.

Materials and Domestic Life. Here the pupil is working not only with wood, but with a whole range of materials from plastics to new decorating materials. Work undertaken may include conversion, renovation and maintenance of the home, interior and exterior decoration, layout of gardens, minor building projects and appreciation of household equipment. The whole field of consumer expertise is an integral part of this work and again a problem solving approach is adopted.

Materials and the Community Development. Pupils are encouraged to identify school and community needs, translate these into design terms, formulate proposals and implement these under staff guidance. Projects undertaken in trial schools include working with geriatric patients, preparing play equipment in educational priority areas and restoring parts of Fountains Abbey.

Materials and Work. In association with colleges of further education, attempts are being made to explore the implications of link courses. Production line situations in the school workshop are being developed for short term adoption to include concepts such as cost-benefit analysis, quantity and variation and labour intensity. Besides school based 'Factory Day' approaches the project is also interested in developing schemes of 'work experience'.

Materials and Leisure. Included in this section are suggestions as to ways in which leisure time can be used, ranging from toy and model making, through photography, karting and land yachts to the theatre.

MATERIALS

Publisher: Edward Arnold Ltd., 41 Maddox Street, London WIR OAN. Publication from 1973.

Teaching materials in the five areas outlined above have been devised in association with schools in Cheshire, Hertfordshire, Leeds, Leicestershire, London (ILEA), N. Wales, Staffordshire, West Riding, Wiltshire, N. Ireland and B.F.E.S. (Germany).

The following publications are planned:

Materials and Education, a comprehensive book for the teacher, covering all aspects of the project's activities, and including aims and objectives, organisational implications, course content, and methods of assessment.

Topic Books, providing more detailed information on specific areas of work. These will include:

i *Materials, Discovery and Design:* Investment Casting, the Creative Use of Concrete, An Introduction to Materials and Design, Design in Practice.

ii *Materials and Domestic Life:* The Motor Vehicle and the School Curricular, Design in the Home and Garden, Design and Consumer Discrimination.

iii *Materials and Community Development:* Designing for Play, Designing for the Old and Infirm, Design and Restoration.

iv *Materials and Leisure:* Designing Karts.

v *Materials and Work:* School-based Production Units.

There will be in addition the *Design and Craft Education Casebook* comprising a number of case studies and divided into five sections corresponding to the areas listed above.

Support Material

It is hoped to produce a number of filmstrips with supporting notes on specific topics within the five areas outlined above.

EXAMINATIONS AND ASSESSMENT

The project has been working in association with the North Western Secondary School Examinations Board towards the preparation of a CSE *Studies in Design* examination.

Two types of work will be assessed: *Section A: Project work* undertaken in any range of materials during a period of two full terms preceding the term in which the examination is held. Candidates will be required to present evidence of their abilities as outlined in the course objectives. *Section B* will be an assessment of either a two year course in *Studies in Design* or a two year Theory course from the Mode I syllabus of an appropriate Art, Craft or Technical subject.

Further details are available from the North Western Secondary School Examinations Board, 36 Granby Row, Manchester M1 7EB.

DIFFUSION AND TRAINING

Increasing numbers of schools have become associated with the project through subscriptions to its termly journal *Survey,* which includes reports from schools using the project's materials.

During the trial phase the project has worked with groups of teachers in trial schools linked by regional co-ordinators. During its final two years the project team is extending the network of local co-ordinators by running training courses for LEA representatives, who will then organise their own in-service training programme. Teachers wishing to have further details of courses in their area should contact their LEA.

RELEVANT PAPERS AND PUBLICATIONS

Schools Council *Education through the Use of Materials* (Working Paper 26) Evans/Methuen Educational, 1969 25p

Schools Council *Choosing a curriculum for the Young School Leaver* (Working Paper 33) Evans/Methuen Educational, 1971 26p

Survey: a termly journal available from the project at 50p. p.a. Current copies can be seen at all teachers' centres

S.J. Eggleston 'New Trends in the School Workshop' *Times Educational Supplement,* 24 July 1970

Francis Zanker and A. Pemberton 'Teachers Courses for the 70s' *Studies in Design Education and Craft,* Vol 3 No 1 Winter 1970

'Design and Craft' *Dialogue* 8, May 1971.

FURTHER INFORMATION

Copies of trial materials and a complete set of *Survey* are available for inspection only in the Schools Council Project Information Centre.

Further information from the project or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

T/P

NUFFIELD MATHEMATICS (MA 05 01)

DIRECTOR: **Professor G. Matthews ***

LOCATION: Nuffield Foundation, Nuffield Lodge, Regents Park, London NW1
Telephone: 01-722 8871

DURATION: 1964–1971 **AGE RANGE:** 5–13 **GRANT:** Nuffield grant only.

The aim of the project is to devise a contemporary approach to mathematics for children from 5–13. The teachers' guides (no pupils' materials have been produced at primary level) do not comprise an entirely new syllabus. The stress is on *how to learn,* not on what to teach. Running through all the work is the central notion that the children must be free to make their own discoveries and think for themselves, and so achieve understanding, instead of learning by heart mysterious drills. To achieve understanding young children cannot go straight to abstractions - they need to handle things ('apparatus' is too grand a word for at least some of the equipment concerned - conkers, beads, scales, globes and so on).

The books have been written by teachers and are intended as guides to an improved way of teaching. They are not guides to the only 'right' way of teaching and development from them is as important as, if not more important than, the guides themselves.

One of the main objectives of the guides is to trigger off thought and discussion in teachers' centres. The trial editions were tried out in hundreds of schools, and have been revised for publication in the light of feedback from the centres and from the schools themselves.

MATERIALS

Publisher: W & R Chambers, 11 Thistle Street, Edinburgh EH2 1DG, and John Murray, 40 Albemarle Street, London W1X 4BD. Orders should be placed through booksellers or the usual educational suppliers. Prices given below are correct at time of going to press. † denotes the title is not yet published.

The guides fall into five main categories:

1. **Teachers' guides** which cover three main topics:

   Computation and Structure
   Shape and Size
   Pictorial Representation and Graphs Leading to Algebra.

   In the course of these guides the development of mathematics is seen as a spiral. The same concept is met over and over again, but illustrated in a different way at each stage. The books do not cover years nor indeed specific time; they simply develop themes and therefore help the teacher to see how to enable each child to progress at its own pace. They contain direct teaching suggestions, examples of apparently un-mathematical subjects, and the situations which can be used to develop a mathematical sense, examples of children's work and suggestions for class discussions and out of school activities.

   Titles are as follows:

1	*Pictorial Representation*	1967	55p
1	*Beginnings*	1967	£1.20
1	*Mathematics Begins*	1967	90p
2	*Graphs Leading to Algebra*	1969	65p
2	*Shape and Size*	1967	75p
2	*Computation and Structure*	1967	85p
3	*Graphs Leading to Algebra*	†	
3	*Shape and Size*	1968	65p
3	*Computation and Structure*	1968	65p
4	*Computation and Structure*	1969	70p
4	*Shape and Size*	1971	60p
5	*Computation and Structure*	1972	

I Do, and I Understand 1967 45p
An introduction to the project

Into Secondary School 1970 25p
The aims of the project as they affect secondary or middle school children

Maths with Everything

work is the central notion that the children must be free to make their own discoveries and think for themselves, and so achieve understanding, instead of learning by heart mysterious drills. To achieve understanding young children cannot go straight to abstractions - they need to handle things ('apparatus' is too grand a word for at least some of the equipment concerned - conkers, beads, scales, globes and so on).

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2	*Shape and Size*	1967	75p
2	*Computation and Structure*	1967	85p
3	*Graphs Leading to Algebra*	†	
3	*Shape and Size*	1968	65p
3	*Computation and Structure*	1963	65p
4	*Computation and Structure*	1969	70p
4	*Shape and Size*	1971	60p
5	*Computation and Structure*	1972	

I Do, and I Understand — 1967 — 45p
An introduction to the project

Into Secondary School — 1970 — 25p
The aims of the project as they affect secondary or middle school children

Maths with Everything
A book for parents to accompany the film, *Maths with Everything* (see over).

2. **Weaving guides.** These are books for the teacher giving detailed instructions or information about a particular subject.

Desk Calculators	1967	15p
How to Build a Pond	1967	55p
Environmental Geometry	1969	£1.00
Probability and Statistics	1969	75p
The Story so Far	1969	35p
Computers and Young Children	1972	£1.20
Guide to the Guides	1972	
Logic	1972	£1.30
Computers and Logic	†	

3. **Check-up-guides** which have been prepared by the Institut des Sciences de l'Education in Geneva (see Development of Individual Assessment Tests (MA 05 02).

Checking Up I	1970	50p
Checking Up II	1972	

Two further check-up guides are in preparation.

4. **Modules.** Some 20 modules, intended for use in middle schools or with lower secondary school children, are being published during 1972/1973. Each module consists of a set of cards for the pupils, together with a book for the teacher in which the cards are repeated, with background information and explanation.

Decimals	1972
Speed and Gradiant 1	1972
Angles and Bearings	1972
Symmetry	1972
Number Patterns 1	1972
Similarity 1	1972
Co-ordinates	1972
Decimals 2	1972
Number Patters 2	1972
Area	1972
Simultaneous Equations	1973
Topology	1973
Vectors	1973
Integers	1973
Functionality	1973
Indices and Molecules	1973
Matrices	1973
Irrationals	1973
Similarity 2	1973
Speed and Gradiant 2	1973

5. **Problems.** Teachers' books and cards for young secondary school children.

Problems - Green set	1969	£1.20 Cards only 45p
Problems - Purple set	1971	£1.35 Cards not sold separately
Problems - Red set	1970	£1.20 Cards only 40p

6. **Other books**

Your Child and Mathematics W.H. Cockcroft, 1968, 30p h.b. 65p
A survey of the project, written for parents.

Mathematical Forum 45p
An anthology of the Bulletin of the Nuffield Mathematics Project edited by D.E. Mansfield.

Mathematics: the first 3 years	1970	£1.00
Mathematics: the later primary years	1972	£1.50
Mathematics: from Primary to Secondary	1973	

Three handbooks by Mrs E.M. Williams produced by CEDO for teachers in developing countries.

Geneva (see Development of Individual Assessment Tests (MA 05 02).

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ASSESSMENT

See 'Nuffield Mathematics: Development of Individual Assessment Tests' MA 05 02.

TRAINING AND DIFFUSION

Almost every LEA in the country now has a local organiser, and there are also some 200 teachers' centres where teachers have met to discuss, modify, amplify, and adapt the Nuffield materials. Regional courses and conferences are organised, and teachers wishing to become involved in the scheme should contact their LEA or the project.

RELEVANT PUBLICATIONS AND FILMS

Schools Council *Progress in primary mathematics* (Field Report 4) 1967, free from the Schools Council

I Do, and I Understand, 15 minute black and white 16mm film, showing a mathematics lesson in a primary school

Into Secondary School, 20 minute black and white 16mm film, showing work in the first year of the secondary school.

Copies of each of these may be obtained on free hire from the Petroleum Films Bureau, 4 Brook Street, London W1 or bought from Sound Services: *I Do, and I Understand* £15 *Into Secondary Schools* £19.

Maths with Everything, 20 minute 16mm film showing maths in the infant school. This can be hired from Concord Films Council Limited, Nacton, Ipswich IP10 QJZ for £1.40p black and white, £2.40 colour, or bought from Graphic Films Limited, 1 Soho Square, London W1 for £28.50 black and white, £90 colour.

Children and Mathematics, five 30 minute television programmes, designed to help teachers in infant, junior and the early years of secondary school. Individual titles are 'We still need arithmetic', 'Common sense and new maths', 'Freedom to think', 'Checking up', 'Teachers at the Centre'. They may be bought at approximately £50 each from BBC Television Enterprises, Villiers House, Haven Green, London W5 2PA, or hired from National Audio Visual Library, Paxron Place, Gipsy Road, London SE27 at £1.50 each (postage 28p).

FURTHER INFORMATION

Copies of all published material and of the film *I Do, and I Understand* are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

Further information is available from Miss Anthea Roberts at the project.

* Professor G. Matthews is now at Chelsea College of Science and Technology, Bridges Place, London SW6.

R/X

NUFFIELD MATHEMATICS: DEVELOPMENT OF INDIVIDUAL ASSESSMENT TESTS

(MA 05 02)

DIRECTOR: Dr L. Pauli

LOCATION: Institut des Sciences de l'Education, Palais Wilson, Geneva, Switzerland

DURATION: 1966–1970 **AGE RANGE:** 5–13 **GRANT:** £11,500

AREA OF INQUIRY

The project was initiated at the suggestion of the Institut des Sciences de l'Education following visits to a number of schools testing materials produced by the Nuffield Mathematics project (MA 05 01) by a research worker from the Institut. It was felt that the learning methods which the project aimed to encourage and the concepts it hoped to instil were based upon the fundamental work originally carried out by Jean Piaget, Director of the Institut, and as the Institut was already famous for its work on concept formation in mathematics with primary-age children, it offered to place its expertise at the disposal of the project.

Thus the Institut undertook to develop a series of 'check-ups' on concept attainment in mathematics which teachers using the Nuffield mathematics guides could use to confirm progress made by individual children.

PROCEDURE

The 'check-ups' have been developed in association with teachers using the material, and all have been tested and revised in the same way as the teachers' guides. The first set, largely complementary to *Mathematics Begins 1* has been published as *Checking Up 1,* and deals with concepts leading to the idea of number and from this to 'operations' on numbers (addition, etc.). The check-ups are not 'intelligence tests'. They are more in the nature of milestones that will allow the teacher to judge just where the child is in his normal development in order to put him in an appropriate play situation, or to give him the right practice. The aim of 'check-ups' is to try to show that children acquire concepts gradually, and to point to the difficulties that they are likely to encounter during their progress.

Checking Up II will be published later in 1972, and two further 'check-up' guides are in preparation.

RELEVANT PAPERS AND PUBLICATIONS

Checking Up I Chambers and Murray, 1970 50p
Checking Up II Chambers and Murray, 1972

All the Nuffield Mathematics guides listed on sheet MA 05 01.

J. Piaget *The Child's Conception of Number,* Tr. Gattengo and Hodgson, International Library of Psychology, Routledge and Kegan Paul
J. Piaget *The Psychology of Intelligence,* Tr. Piercy and Berlyne, International Library of Psychology, Routledge and Kegan Paul.

FURTHER INFORMATION is available from Miss Anthea Roberts, Nuffield Mathematics Project, Nuffield Foundation, Regents Park, London N.W.1. or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

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R

PRIMARY SCHOOL MATHEMATICS: EVALUATION STUDIES (MA 05 03)

DIRECTOR: Professor J. Wrigley **RESEARCH OFFICER:** M. Ward

LOCATION: School of Education, University of Reading, London Road, Reading RG1 5AQ
Telephone: Reading (0734) 85234 ext. 218

DURATION: 1972–1973 **AGE RANGE:** 5–11 **GRANT:** £6,750

AREA OF INQUIRY

In the last twenty years or so there has been considerable change both in the content and style of teaching in primary mathematics. The Mathematics Evaluation Advisory Committee thus recommded to the Schools Council the establishment of a number of exploratory studies of new methods to identify and describe the major approaches in the teaching of mathematics in primary schools.

PROCEDURE

A framework for the analysis of content and concepts has been devised, and is being used for a study of published tests and texts, and of schemes of work in mathematics produced by working groups of teachers in some thirty LEAs. This analysis has led to the development of a selection of 40 questions for 10 year-olds, representing a sampling of topic areas and concepts revealed. The results will be analysed in terms of the number of children who can handle the separate topic areas and concepts rather than of a child's total score.

Teachers of the children in the pilot study will be asked to give their opinion of the importance of each question. It is hoped to discover relationships existing between children's success and teachers' opinion of importance. Furthermore, the teachers and head teachers taking part will be asked to complete a questionnaire dealing with general organisation of mathematics teaching and with classroom procedures. Results from this part of the study will also be used in the analysis of children's success on individual questions.

These investigations will suggest which methods would be most useful in a major study of the effects of changes in primary teaching.

RELEVANT PAPERS

'The First Six Months'. Available free from the project.

FURTHER INFORMATION is available from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

T/P

MIDLAND MATHEMATICS EXPERIMENT (MA 11 01)

DIRECTOR: **C. Hope,** Worcester College of Education (until March 1972)
R. M. Stokes, Coventry College of Education (from April 1972)

SECRETARY: **R. H. Collins,** Alpha House, The Avenue, Rowington, Warwicks.
Telephone: Lapworth 3342

DURATION: 1968–1971 **AGE RANGE:** 11–18 **GRANT:** £24,000

AREA OF INQUIRY

The Midland Mathematics Experiment was initiated in December 1961 with the construction of an experimental draft scheme for a newly opened grammar school. A number of Midland schools decided to adopt this scheme as a basis for a new O-level syllabus, and by 1966 some 6,000 children were involved in the testing of text material.

The MME is concerned to construct a new syllabus which:

1. takes notice of contemporary mathematics
2. includes contemporary uses of mathematics in industry, science etc.
3. puts mathematics into a setting which pupils recognise as within their experience of the twentieth century
4. is taught in the light of educational developments of the past thirty years paying due attention to providing background experience, aiming at insight into structure and encouraging pupils to recognise patterns into which mathematical ideas fall.

In 1967 the MME approached the Schools Council for a grant to enable the project to employ three full-time teachers for three years, one with responsibility for CSE and non-examination pupils, one for O-level and one for A-level. The grant was approved and the teachers were appointed:

1. to collect and prepare course materials
2. to examine, collate and investigate in schools, the teacher's reports on the teaching methods, schemes of work, and suitability to different sets of children
3. to visit schools to evaluate the success or claims associated with a particular part of the scheme, to try out ideas for teaching and presentation
4. to spend some time in particular schools helping the mathematics department to achieve the spirit of MME schemes, by helping teachers to become familiar with the new topics of the syllabus and to demonstrate effective ways of teaching them

PROCEDURE

Members of the project have been concerned with the writing of CSE, GCE O-level and A-level syllabuses, the testing of these in schools, and the publication of revised texts for more general use.

MATERIALS

Publisher: All CSE and O-level materials are published by George Harrap & Co., 182 High Holborn, London W.C.1 from whom further details are available. Prices below are correct at time of going to press.

CSE			
Volume IA	1969	£1.15	These two volumes cover
Volume IB	1970	£1.15	the first two years (11-13) of a CSE or GCE course
Teachers' Answers & Notes IA & B	1969	£2.00	
Volume IIA (CSE)	1970	£1.20	Third year CSE course
Volume IIB (CSE)	1971	£1.25	Fourth year CSE course
Volume IIC (CSE)	1971	£1.25	Fifth year CSE course
GCE O-level			
Volume IA	See CSE		
Volume IB			
Volume IIA (GCE)	1970	£1.40	Third year GCE course
Volume IIB (GCE)	1971	£1.40	Fourth year GCE course
Volume IIC (GCE)	1971	£1.50	Fifth year GCE course

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Examples in Modern Mathematics (Years 1,2,3)	1972	£1.50
Excursions from Mathematics (Parts A & B)	1968	£1.00
Excursions from Mathematics Part A	1968	65p
Excursions from Mathematics Part B	1968	65p

GCE A-level

These texts are available in draft form only, from the MME Secretary:

Numerical Analysis	1969	45p
Boolean Algebra	1969	25p
Sets, Mappings & Relations	1969	40p
Groups, Rings & Fields	1970	50p
Mechanics 1	1970	50p

The following are in preparation: Matrices, Vector Geometry, Vector Spaces, Analysis, Probability and Statistics, Mechanics II.

Miscellaneous Materials available from the MME Secretary:

Charts

Chart No. 1 (Fraction)	1966	65p + 10p postage per 100
Chart No. 2 (Navigation)	1966	65p + 10p postage per 100
Chart No. 3 (Triangle Lattice)	1966	65p + 10p postage per 100
Chart No. 4 (Vector Diagram)	1966	65p + 10p postage per 100
Chart No. 5 (Patterns on a circle)	1966	65p + 10p postage per 100
Chart No. 6 (Area)	1966	65p + 10p postage per 100

Logic Circuit Kits

Pupils' Logic Circuit Boards	1970	£2.75
Mains Power Supply for 15 Pupils' Circuit Boards	1970	

Punched Cards

Trial Pack (T) of 100 cards	1970	65p (+ 10p for postage)
Trial Pack (H) of 50 cards 3 transparancies & duplicated notes	1970	80p (+ 10p for postage)

TRAINING AND DIFFUSION

Schools making use of MME texts are invited to fill in an "MME Statistics" form (obtainable from the Secretary). This enables them to be kept informed of all that is happening, and be given advice and help as required.

EXAMINATIONS

CSE. A revised syllabus, examined in 1970 by the West Midland Board, has been produced, together with specimen papers.

O-level. An O-level syllabus has been prepared in co-operation with the Joint Matriculation Board. The examination was taken by some 1774 candidates in summer 1970.

A-level. The lack of an MME Further Mathematics syllabus has meant that most participating schools have opted for the JMB Syllabus 'B'. The A-level syllabus has subsequently been withdrawn and schools are asked to consider either their own board's syllabus or the JMB Syllabus 'B'.

PUBLICATIONS – all available from the MME Secretary.

CSE Syllabus 1966	Revised 1970	Free
Specimen questions for Revised syllabus		Free

West Midlands CSE (Mode 2) June 1967, Papers I and II		15p
West Midlands CSE (Mode 2) June 1968, Papers I and II		15p

Single sets of papers for West Midlands CSE, available from the Board.

O-level syllabus	1966	Free
JMB O-level Papers 1 and 2	June 1967	10p per set

Single sets of papers for JMB O-level available from the Board.

A-level syllabus	1966	Free

Single sets of JMB A-level papers available from the Board.

Set of O-level papers 1967–69	22½p

RELEVANT PAPERS AND PUBLICATIONS

Report	1962/3	Harraps, 1964	out of print
Report	1963/4/5	Harraps, 1967	£1.50

Interim Report on the Application of Programme Learning Techniques to MME, 1968. Available from the project.

MME Programme Learning Report 1968/9, 1969, 20p (including postage). Available from the project.

Report 1968–70, 1970, Available from the project.

MME Magazine, No. 1, October 1970, No. 2, Spring 1971. A forum of ideas for participating teachers. Available free from the project.

FURTHER INFORMATION is available from Mr. R. H. Collins.
Copies of all published materials are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

R

THE MATHEMATICS CURRICULUM: A CRITICAL REVIEW (MA 11 02)

DIRECTOR: **Professor J.V. Armitage**

LOCATION: Shell Centre for Mathematical Education, University of Nottingham, Nottingham NG7 2RD **Telephone:** Nottingham (0602) 56101 Ext. 3271.

DURATION: 1973–1976 **AGE RANGE:** 11–16 **GRANT:** £50,000

AREA OF INQUIRY

The mathematics teacher today faces a daunting array of syllabuses, modern literature, teaching materials, methods and mathematical treatments from which he must choose for his pupils. Whilst the final choice belongs properly to the teacher, the range of choice is so great that he often, of necessity, tends to adopt some simplifying device such as opting for a 'traditional' or 'modern' syllabus, or committing himself wholly to one of the available 'packages'. Teachers increasingly feel a need for help in choosing what mathematics to include for different groups of pupils and in deciding what methods to use in handling the chosen topics.

PROCEDURE

The project will produce a series of surveys of central mathematical topics. Each survey will give a synoptic view of the topic at school level. It will show how the topic connects up with other branches of mathematics; it will discuss the various ways of introducing the topic, and it will analyse the attendant advantages or disadvantages of each approach from the point of view of mathematical development as well as classroom presentation; and it will explore possible applications.

It is envisaged that each survey will take the form of a booklet of between 75 and 100 pages. Each booklet will contain:

1. a review of possible syllabus contents in the area covered
2. critical appraisals of those contents from the points of view of mathematical background and classroom presentation
3. a survey of current practices in all syllabuses and a range of typical text books
4. consideration of topics and treatments appropriate to different backgrounds and ability levels
5. a look at problems, as significant riders illuminating the material or as sources of discovery work
6. suggestions for the teacher on lines of work, arising out of 1 and 5, which he could follow up and develop himself
7. illustrative material: applications inside and outside mathematics, mechanical apparatus, visual aids
8. a bibliography: books and journal references for mathematical background, ideas for classroom presentation and source material for applications.

It is hoped that the following major topics will be covered by the surveys:

i Numbers
ii Geometry
iii Algebra
iv Combinatorial mathematics and related topics
v Applications
vi Calculus (as foreshadowed in pre-sixth form work)
vii Interdisciplinary activities.

A final booklet will attempt to set in a wide perspective the topics which occupy the foreground in the preceding studies.

FURTHER INFORMATION is available from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

N.B. THIS PROJECT WILL NOT START UNTIL APRIL 1973.

JUNE 1972

T/R

MATHEMATICS FOR THE MAJORITY (MA 13 01)

DIRECTOR: P. Floyd *

LOCATION: Institute of Education, University of Exeter, Gandy Street, Exeter EX4 3QL.

DURATION: 1967–1972 **AGE RANGE:** 13–16 **GRANT:** £83,000

AREA OF INQUIRY

The project, part of the Schools Council's programme for the raising of the school leaving age, was commissioned as the result of a study of mathematics in secondary schools, undertaken by Mr Floyd in 1965/1966.

This showed that the mathematical education provided for pupils of average and below average ability was very patchy, and a report was subsequently published as Schools Council Working Paper 14 *Mathematics for the Majority*. Evidence provided in the Newsom Report *Half Our Future* also pointed to the poor standards of mathematical education of a vast number of early-leaving pupils.

The aim of the project was to produce a series of teachers' guides which would lead teachers into reassessing their work in mathematics with pupils between 13 and 16 years of age of average and below average ability, and which would provide source materials and ideas from which these teachers could make up their own courses.

As far as the pupils are concerned, the project aimed:

1. to provide pupils with experience of mathematical situations to encourage powers of judgement and imagination
2. to remove barriers isolating mathematics from other areas of the curriculum and other interests of the pupils
3. to give pupils some understanding of mathematical concepts which underlie the numeracy required for every day affairs
4. to enable pupils to appreciate in some measure the order and pattern of their environment.

PROCEDURE

The project team was concerned with the preparation of a number of teachers' guides, which do not in themselves make up a course, but attempt to provide material from which teachers can develop courses for the less able pupils, more extensive material for brighter young school leavers, and further material to provide non-specialist teachers with background mathematical knowledge.

It is suggested that formal class teaching should be minimal, and that pupils should learn mathematics through practical and individual work. This has obvious implications for the school, both in the amount and type of space needed and in the teaching situation, where the role of the teacher changes from that of a purveyor of information to that of an adviser/tutor. In addition, the guides have been prepared with the non-specialist mathematician in mind, and in a team-teaching situation much of the presentation and discussion can be conducted by such non-specialists.

All guides have been tested in 27 pre-pilot schools before an initial revision and distribution to 87 pilot schools from 23 LEAs, and 378 associated schools from 80 LEAs. Teachers from the pilot schools provided the project with feedback on the guides, which were then further revised before final publication.

MATERIALS

Publisher: Chatto and Windus Educational Limited, 3 Upper James Street, Golden Square, London WIR 4BP from whom the guides are available. Publication from 1970. Prices given below are correct at time of going to press.

Mathematical Experience 1970 43p
This book discusses the aims of the project and includes contributions from teachers who are actively concerned with teaching mathematics at this standard.

Machines, Mechanisms and Mathematics 1970 60p
This is a survey of many forms of simple mechanisms which are met in everyday life, with discussion of the mathematical principles underlying them.

Assignment Systems 1970 30p
Assignment systems can play an important part in mathematics teaching at this level, and this book discusses methods of preparing them, giving many examples.

Luck and Judgement 1971 80p
A classroom approach to probability and statistics. The activities in this book provide the pupil with

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Assignment Systems 1970 30p
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Luck and Judgement 1971 80p
A classroom approach to probability and statistics. The activities in this book provide the pupil with a practical basis for classroom discussions through which he may appreciate some of the ideas of

probability and statistics.

Mathematical Pattern 1971 53p
This book brings together, from a variety of branches of mathematics, topics in which an element of pattern is strongly emphasized.

Number Appreciation 1971 75p
This is a guide dealing with the number systems in common use and with some of their properties.

Mathematics from Outdoors 1972 £1.15
A guide concerned principally with simple surveying and navigation.

Forthcoming titles

From Counting to Calculating 1972 **£1.20**
A study in arithmetic for secondary pupils, this guide suggests some fields of application appropriate to the needs and abilities of less able older secondary pupils and surveys the use and introduction of suitable calculating aids.

Some Simple Functions 1972
The central theme of this book is the study of relationship, which in some senses is a sort of master key which can unlock many doors to mathematics. Some of these doors are opened in the text, but others appear either explicitly or implicitly in many of the other books in the series.

Algebra of a Sort 1972
Meaning and purpose have been imparted to this book by making the study of formulae the basis for understanding and for development, with an emphasis on the importance of helping pupils to make generalisations from a number of particular cases. It regards the formal deductive approach as inappropriate in the circumstances, and so lays stress on inductive reasoning together with some intuitive thinking.

Space Travel and Mathematics (two books) 1973
The development of space technology is a modern development which must concern us all as citizens. Although much of the mathematics involved is complex, yet the basic ideas are within the comprehension of the layman. These are books on the basic ideas and the simpler mathematics used. Book two is a sequel to book one.

Geometry for Enjoyment 1973
A serious but lighthearted book which makes suggestions for creating in the classroom a structured and more precise environment within which pupils can work mathematically. It includes suggestions for examining a variety of materials which the pupil can pick up, move, turn over, join or dissect.

Crossing Subject Boundaries 1973
This book aims to examine ways in which teachers of mathematics might work together with teachers of other subjects. It discusses manifestations of mathematics and of mathematical thinking over a wide range of topics many of which already find a place in the school curriculum.

Some Routes through the Guides 1973
As well as being a kind of project hand-book, this book discusses the mathematics curriculum in general, and the construction of mathematics courses for average and below average secondary pupils in particular. It provides synopses of the other books in the series, and it gives extensive lists of books, materials and sources likely to be of use to mathematics teachers.

EXAMINATIONS AND ASSESSMENT

Some trial schools have been working towards a CSE Mode 3 examination with an upper limit of a Grade 4 pass, but the guides are not principally intended to form part of a CSE course.

EVALUATION **Evaluator:** P. Kaner (1967–71) M. Cannon (1971–1972)

The evaluation officer has been working in four main areas:

1. evaluation activities intended to clarify and enlarge on the objectives of the project. This includes a) identifying different aspects of the curriculum problem which the project is trying to tackle; b) clarifying the objectives of teaching mathematics to the average and below average pupils; c) finding out as much as possible about the educational attainments of the pupils concerned, and examining other related factors
2. evaluation activities intended to facilitate the editing of trial versions of the guides
3. evaluation activities designed to measure the impact on the pupils involved, both as regards the project's declared objectives and also in relation to other aspects of pupil behaviour
4. evaluation activities designed to lead to the publication of a descriptive report on the project and its impact on the educational scene.

Publication of the final evaluation report is currently under consideration. An account of the evaluation of this project is given in a paper by Peter Kaner, one of twelve contributions to a symposium of evaluation studies to be published in the series 'Schools Council Research Studies' by Macmillan Education in 1973.

TRAINING AND DIFFUSION

So many LEAs have been involved with the project's work at trial stage that a large network of area liaison officers was established with responsibility for local training courses. It is hoped that they will be prepared to continue this work now that the project has ended and if so the availability of courses will be made known to LEAs to whom teachers should apply for information. The project training courses. The ideas and resources package is out of print, but a limited number of copies of the tape-slide sequence is available on hire from the Schools Council Project Information Centre.

RELEVANT PAPERS AND PUBLICATIONS

Schools Council *Raising the School Leaving Age* (Working Paper 2), HMSO 1965 17½p
Schools Council *Mathematics for the Majority* (Working Paper 14), HMSO 1967 25p
Schools Council *Choosing a Curriculum for the Young School Leaver* (Working Paper 33) Evans/Methuen Educational, 1971 26p
Mathematics for the Majority *Dialogue* 3, 1969 June
P.J. Floyd 'Mathematics for the less able' Proceedings of the Commonwealth Mathematics Conference, Trinidad 1968 (Commonwealth Secretariat)
P.J. Floyd 'New paths in schools maths' *Higher Education Journal,* NUT Summer 1968
P.J. Floyd 'Not good enough for Heaven, nor bad enough for Hell' *Times Educational Supplement,* 30 October 1970.

FURTHER INFORMATION

All published and draft materials and all items listed above are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

N.B. See also the Mathematics for the Majority Continuation Project sheet MA 13 02. This project, directed by Mr Peter Kaner at the University of Exeter, will run from 1971 to 1974 and is producing classroom materials for mathematical learning for non-academic children aged 13–16.

*Mr Floyd is no longer at the Institute.

JUNE 1972

T/P

MATHEMATICS FOR THE MAJORITY CONTINUATION PROJECT (MA 13 02)

DIRECTOR: P. Kaner

LOCATION: 3 The Cloisters, Cathedral Close, Exeter EX1 1HS. **Telephone:** Exeter (0392) 56226/7

DURATION: 1971–1974 **AGE RANGE:** 13–16 **GRANT:** £69,000

AREA OF INQUIRY

The guides prepared by the Mathematics for the Majority project (MA 13 01) were designed to help teachers prepare their own courses for less academic secondary pupils. Experience in the trial and associated schools revealed the need for some pupil material related to the guides and the Continuation Project was established to provide it.

The aim of the Continuation Project is therefore to provide classroom material in mathematics for less able pupils between 13 and 16. It will take the form of packages of source material, which will contain film loops, audio and visual material, pupil assignments and study guides.

The underlying theme of the packs is mathematics and the environment, and the intention is to demonstrate a range of mathematical principles and concepts by using familiar aspects of every day life.

PROCEDURE

The project is anxious to ensure that the original packages of material are written by serving teachers. Local education authorities were therefore approached to nominate local groups of teachers for this purpose and to release them from school for a certain time each week. The response was so good that 51 such writing groups have been established, each one responsible for a specific topic. The work of three or four groups is co-ordinated by a teacher, adviser, or teachers' centre warden, who, like the teachers in the group, is released from his normal duties for a short period each week.

Each writing group, having completed its package, becomes an evaluation group and tries out other groups' materials in schools. Before trials, the packages are edited and assembled into units by the project team after discussion with the regional co-ordinators. Editing involves combining and condensing material provided by groups which have taken the same or related topics. It is also designed to ensure that mathematical principles are presented to pupils in an orderly progression. Assembly involves a good deal of design work which is done either by the project team or by a College of Art.

After trials in the schools, the units are re-edited in the light of the evaluator's and the teachers' comments. They will then be offered for publication.

MATERIALS

Publisher: to be selected. Publication from 1974.

Publication is likely to be in groups of units, and the twelve units will probably be:

Mathematics and
(i) *Buildings*
(ii) *Communications*
(iii) *Living in Cities*
(iv) *Outdoor Recreations*
(v) *The Sea and River*
(vi) *The Family*
(vii) *Shops and Advertising*
(viii) *Agriculture and Forestry*
(ix) *The Motor Car*
(x) *Living Creatures*
(xi) *Holidays and Entertainment*
(xii) *Travel*

The packages include work cards, background booklets, a teachers' guide, photographs and drawings, models, tapes, games and puzzles.

EVALUATION

Evaluator: G. Manfield

All materials are being tested by teachers involved in writing groups and some by schools who have had no connection with the project. Care is taken to test material in a variety of schools e.g. rural, urban, comprehensive, secondary modern. The evaluator visits the schools and talks to both pupils and teachers. The aim is both to assess the success of the material in the classroom and to report on the impact of the project's ideas on mathematics education in schools.

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TRAINING AND DIFFUSION

This project has been fortunate in being able to build upon the wide range of contacts already established by the Mathematics for the Majority Project.

In addition to the involvement of many teachers in the writing groups, the project has invited local education authorities to send members of their in-service training teams to work for a week with the project team.

An increasing number of teachers are kept in touch with the project through subscription to its termly journal *Newsmaths*.

RELEVANT PAPERS AND PUBLICATIONS

All guides published by Chatto and Windus on behalf of the Mathematics for the Majority Project.

Newsmaths, a journal produced termly by the project and available from them at 20p per issue.
Peter Kaner 'Teachers *can* write' *Times Educational Supplement*, 5th November 1971.

AUDIO–VISUAL

A 20-minute 16mm. colour film has been made for the project by Sideline Films Limited. In addition to showing many examples of the materials in preparation, the film explains the way the project has been organised and catches some of the enthusiasm of the teachers involved. Details of charges for buying or hiring the film will be available shortly from the project or the Schools Council Project Information Centre.

FURTHER INFORMATION is available from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

T/P/R

SIXTH FORM MATHEMATICS CURRICULUM PROJECT (MA 16 01)

DIRECTOR: C.P. Ormell

LOCATION: School of Education, University of Reading, London Road, Reading RG1 5AQ.
Telephone: Reading (0734) 85234 Ext. 218

DURATION: 1969–1975 **AGE RANGE:** 16–18 **GRANT:** £85,000

AREA OF INQUIRY

The project was initially established to:

1. review the content of sixth form mathematics
2. investigate the connection between mathematics and physics
3. investigate the mathematical needs of pupils taking other subjects such as biology and economics
4. investigate the mathematics that can profitably be taught as part of the general education of sixth form pupils.

A preliminary analysis of the eight 'new maths' A-level syllabuses and the many 'traditional' syllabuses led the project to some fundamental questions about the aims, objectives, and priorities of sixth form mathematics syllabuses and the resulting need for a new approach based on new materials. The Schools Council therefore granted an extension to 1975 to enable the project to develop and evaluate materials appropriate to mathematical specialists, scientists, and the general education of sixth form pupils.

PROCEDURE

The main preliminary postulate of the project is that progress lies neither in more 'structural' content, nor in a return to the traditional syllabus, but in a syllabus much more closely related than previously to the possibilities of a range of real situations. Preliminary syllabus analysis led the project to conclude that most 'modern' and 'traditional' mathematics syllabuses rely heavily on 'vertical relevance', that is the building up of elaborate structures which are justified mainly on the ground that they will make sense when the student is at a more advanced stage. In contrast to this, the project's work is based on 'horizontal relevance'. An analysis of this has led to the further concept of 'hypothetical relevance', which consists of the mathematical discussion of hypothetical real-life situations, and poses problems about the consequences and implications in ordinary terms of changes and developments in these situations. The full usefulness of mathematics is brought out by relating mathematical methods to the possibilities of concrete situations.

In a recent paper the project has outlined five main conditions which ought to be met by a good sixth form mathematics curriculum:

1. it should imply a course of work which will consolidate manipulative facility and lead the student to the point where he or she is free to think mathematically
2. it should sustain and consolidate mathematical sensibility in the student's mind. Not only must convincing proofs be given, but they must be seen to be transparent, natural and convincing
3. it should point in the direction of further pure and user mathematics
4. it should be self-evidently interesting, relevant and rewarding from the student's point of view
5. the curriculum should not be overloaded.

MATERIALS

Publisher: Heinemann Educational Books, 48 Charles Street, London W.1. from 1973.

The main output of the project will be in two parts: 1) a critique of the syllabus problem in depth, to the point where it implies particular syllabus content and constructior methodology, and the application of this to produce actual syllabuses tuned to special needs, particularly those of the future mathematician, physicist, biologist, economist, social scientist, arts undergraduate; 2) a body of material which can be used to enrich an existing sixth form course or as a complete one-year sixth form course in 'Basic Applicable Mathematics'. Another output will be a study of the Mathematics-Physics problem.

Three 'packages' of material were produced during the pilot phase - *Indices, Quadratic Models* and *Limits*. A mathematical topic is presented in each of these packages as an instrument for investigating possibilities. Each package contained a main pupil text; tables or charts, where relevant; a harder problem supplement; a teacher's guide; a pupil's 'Background and Answers' book. Each package involved 2–3 weeks' work.

Eleven units of work were prepared for Phase II trials (1971/1972), each one comprising a Text, plus a Background and Answers book. Titles are *Indices Integral, The Binomial Theorem, Geometric Series, Indices, Rational and Negative, Further Binomials, Logarithmic/Exponential Function, Linear Models, Quadratic Models, Generalisation, Limits, Biological Models.*

In addition the project has produced (in draft form) a general background text for pupils, an introduction to teaching applicable mathematics and a guide to the philosophy of the project.

These materials have been tested in about 100 trial schools and the teachers concerned have completed questionnaires to assist the project in judging the results and their bearing on the validity of its ideas on 'hypothetical relevance'. It should be stressed that the project is not simply developing material, but rather a material-approach 'package deal': its chief concern is in developing a new attitude to mathematics - one which relates mathematics strongly to the imaginative possibilities of situations.

EXAMINATIONS

The project is hoping to design and establish a new kind of sixth form examination to be called 'Basic Applicable Mathematics'. An experimental one-year pilot course in Basic Applicable Mathematics is to begin in September 1973.

EVALUATION

The evaluation aims to find out how 'hypothetical relevance' material affects the student's interest in, assimilation of, and sense of purpose with a given kind of mathematical technique.

RELEVANT PAPERS AND PUBLICATIONS

Paper 1/69	*Introducing the Project*
Paper 2/69	*Outline Programme of the Project*
Paper 3/69	*Opportunities for Individual Teachers and Schools to take part*
Paper 4/71	*Materials for Trials, Phase 2*
Paper 5/71	*An Outline of the Project 1969–1971*
Paper 6/71	*Package Synopses, Phase 2*
Papers 6-11	*are concerned with technical aspects of trials and examinations.*
Newsletters	Produced twice-yearly, 4 to date. 27p for issues 2 to 5.
MP 1/69	*The Mathematics for Physics Problem*
MP 2/69	*The Mathematics needed in Sixth Form Physics*
MP 3/70	*The Crux of the Maths-Physics Problem*
MP 4/70	*What can be done about Mathematics for Physics in the Sixth Form?*
MP 5/71	*The Problem of Transfer between Maths and Physics in the Sixth Form and of Minimising the degree of Mismatch of the Syllabuses*

Copies of all these are available from the project.

C.P. Ormell 'Ideology and the Reform of School Mathematics', *Proceedings of Philosophy of Education Society of Great Britain*, Vol III, 1969.

Christopher Ormell 'Mathematics through the Imagination', *Dialogue* 9, September 1971.

C.P. Ormell 'Newtonian Mechanics and the Sixth Form Syllabus', *Int. J. Math. Educ. Sci. Technol.*, Vol 2, 233-241, 1971.

F.L. Knowles 'An Approach to Applicable Mathematics' *Math. Teaching*, 56, 50-53, 1971.

C.P. Ormell 'Mathematics, Applicable v. Pure and Applied', *Int. J. Math. Educ. Sci. Technol.*, 3, 125-131, 1972.

C.P. Ormell 'Mathematics, Science of Possibilities', *Int. J. Math. Educ. Sci. Technol.*, 3, 329-341, 1972.

FURTHER INFORMATION

Copies of all items listed above and all trial materials are available for reference only in the Schools Council Project Information Centre.

Further information is available from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

T/P

CONTINUING MATHEMATICS PROJECT (MA 16 02)

DIRECTOR: A.W. Fuller

LOCATION: Educational Development Building, University of Sussex, Falmer, Brighton, Sussex BN1 9RG **Telephone:** Brighton (0273) 66755.

DURATION: 1971–1975 **AGE RANGE:** 16–18 **GRANT:** £75,000 (+£35,000 from NCET + £38,000 from Industry + £25,000 from DES + £2,400 from SED).

AREA OF INQUIRY

The project is intended to demonstrate the potentialities of the principles and methods of educational technology applied to an area of education in which there is both an acknowledged lack of specialist teachers and a genuine demand. The area chosen is the continued study of mathematics in sixth-form minority time by students not preparing for examination in this subject at Advanced Level. The demand is expressed outside education in a common plea for greater numeracy amongst the general public in the computer age and inside schools and institutions for higher education by spokesmen from such disciplines as economics, geography and biology.

PROCEDURE

The project team aim at fulfilling the brief outlined in *Continuing Mathematics* Working Paper 2 of the National Council for Educational Technology: to produce a flexible system of learning materials, mainly self-instructional, to occupy some 200 hours of student time, although it is realised that few students, if any, will work at all the materials. Instead, a modular form of production, with route guides, will be designed to facilitate the selection of units to meet different students' requirements and priorities.

A *unit* is intended to occupy a student for from two to five lessons. It will generally contain a pretest and always a post-test. A *module* is a collection of about three or four units providing a course in a definite subject area. Triple modules in Probability and Statistics, Calculus and Algebra (Matrices, etc.) are planned for initial production. The first stage of each of these triples will be incorporated in a Foundation Course containing general units through which a student can pick an individually suitable route. The second and third stages will be self-contained. Materials will be prepared to assist non-specialist teachers in charge of learning groups.

This activity will occupy the team until half-way through the project. Meanwhile, writing teams from outside have been invited to contribute modules in more specialised topics, such as mathematics for art, business studies or home economics.

Most of the material will take the form of programmed texts, accompanied by experiments and investigations and supported by audio-visual materials where the extra expense can be justified by educational advantages. Costs are to be kept down to a level commensurate with the ordinary budget of a maintained school.

RELEVANT PAPERS AND PUBLICATIONS

A.G. Howson and M.R. Eraut *Continuing Mathematics,* Working Paper 2, National Council for Educational Technology, 1969 42½p

J.F. Duke 'Self-teach for the non-mathematical sixth-former', *Times Educational Supplement,* 5th November 1971.

FURTHER INFORMATION is available from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

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T

SCIENCE 5–13 (SC 05 01)

DIRECTOR: L.F. Ennever **DEPUTY DIRECTOR:** A. James

LOCATION: School of Education, University of Bristol, 19 Berkeley Square, Bristol BS8 1HF
Telephone: Bristol (0272) 24161.

DURATION: 1967–1973 **AGE RANGE:** 5–13 **GRANT:** £144,440 (+£13,000 from Nuffield Foundation, £10,340 from Scottish Education Department + £2,000 from Plastics Institute)

AREA OF INQUIRY

The project was established to consolidate and extend the work on primary science teaching initiated by the Nuffield Junior Science project, paying particular attention to the needs of older junior pupils, and pupils in the early years of secondary school. The main aim of the project is seen as the identification and development of topics or areas of science related to a framework of concepts appropriate to the age of the pupils. The aim of the development work is to assist teachers to help children, through discovery methods, to gain experience and understanding of the environment and to develop their powers of thinking effectively about it.

The project was also asked to take account of the needs of children with varied abilities and environments, to study how to increase primary school teachers' knowledge of science, to advise colleges of education on the science of curriculum courses and to maintain close liaison with other related projects.

PROCEDURE

The project's development of materials is based upon an analysis of mental development, and a statement of objectives for children learning science. The description of mental development was broken down into three stages: Stages 1 and 2 are those in which children develop mental operations through the exploration of concrete objects and materials, Stage 2 being indicated by a greater facility in handling variables and quantitative values. Stage 3 is marked by a developing ability to think in the abstract – children can begin to deal with situations that are merely possible; their thought is not tied to concrete things nor the immediate reality, but can deal with what might be.

Behavioural objectives for children learning science, related to these three stages, are dealt with in greater depth in *With Objectives in Mind* but the principal aim upon which these are based can be summarised as 'developing an enquiring mind and a scientific approach to problems'. This is broken down into: developing basic concepts and logical thinking; posing questions and devising experiments or investigations to answer them; acquiring knowledge and learning skills; communicating; interpreting findings critically; appreciating patterns relationships; developing interests, attitudes and aesthetic awareness; observing, exploring and ordering observations.

Basing their work on the conviction that teachers should be responsible for thinking out and putting into practice the work of their own classes, and that children tend to work best when trying to find answers to problems they have themselves chosen to investigate, the project team have produced a series of 'units' or teachers books, which are studies of particular subject areas or of themes that weave in and out of these subject areas. They are not intended to cover the whole range of possible topics and it is hoped the groups of teachers will develop their own 'units' along the same lines. The units, details of which are given below, are not intended to form a syllabus, or a course. The apparatus described in them is generally of a simple kind. All the units have been written in association with teachers and tested in over 600 trial classes spread throughout the country, in 19 Pilot areas in England and Wales and eight others in Scotland. A large number of associate schools have also used the materials, but are not part of the evaluation scheme.

The implementation of the project will obviously vary from school to school, but in that much of the work is individual or group work, the working area will need to be flexible, and there will need to be easy access to materials, tools, water etc. Children will need to be able to proceed at their own pace. It is a help if teachers are able to see the inherent science in the situations they study with the children, and the project team would suggest that in the later stages of the age-range in secondary and middle schools there is need in schools for a teacher more especially trained in science, not necessarily in order to teach it as a separate subject, but to act as a consultant to his colleagues.

As open a time table as possible is envisaged; the branches of science are not seen as separated and ample provision is made for integrating science with other subjects.

MATERIALS

Publisher: Macdonald Educational, 49 Poland Street, London W1A 2LG, from 1972.
Prices given below are correct at time of going to press.

With objectives in mind 95p
The basic thinking of the project and a discussion of the objectives it hopes children will achieve through working in science.

Early experiences £1.25
Shows how science with young children is primarily concerned with observing and gathering experience and contains many starting points and activities.

Structures and forces – Stages 1 & 2 95p
Structures of all kinds from cobwebs to skyscrapers, are looked at together with the properties of the materials from which they are made, and the balanced forces which keep them together.

Working with wood – Stages 1 & 2 95p
A book of practical suggestions supported by guidance about the choice and use of materials and tools.

Working with wood – Background Information 95p
Offers teachers factual information on wood and the uses man makes of it.

Time – Stages 1 & 2 and Background 95p
Shows how children gather an increasing awareness of the duration of events, and contains background information about wider aspects of time such as the calendar and biological time.

Science from toys – Stages 1 & 2 and Background 95p
Toys provide a large number of starting points for nearly all branches of learning and can encourage integration of subejct matter.

Structures and forces – Stage 3 1973
Dealing with a progression of experiences with forces which make things move and forces opposing movement, and with tensions and compressions in springs, and tensions in the surface of liquids.

Change – Stages 1 & 2 1973
This book suggests that children might look critically at some of the changes within their experience.

Change – Stage 3 1973
Explores less obvious changes. All change involves energy, and in this book energy changes and chemical changes are linked to children's environments.

Minibeasts – Stages 1 & 2 1973
Worms, slugs, snails, spiders and many kinds of insects are the 'minibeasts' of this Unit. They are introduced from a child's point of view and the book is organised to help teachers develop work arising from children's initial contact with the animals.

Holes, gaps and cavities – Stages 1 & 2 1973
This very wide-based title takes advantage of the 'butterflying' nature of children and covers diverse activities ranging from looking for holes in the environment to making sorting machines based on holes and examining the effects of passing liquids through holes.

Trees – Stages 1 & 2 1973
This Unit looks at trees in playgrounds, city street, town parks and the countryside and offers teachers help in appreciating the wide range of activities that can occur when children explore trees.

Coloured things – Stages 1 & 2 1973
This Unit includes people, paints, flowers, fabrics, fires and road signs. It is deliberately diverse in subject-matter, and gives guidance about activities that can arise from children's natural contact with the colourful things of their environment.

Metals – Stages 1 & 2 1973
This book suggests ways in which children might exolore the world of metals and get to know something of their properties.

Metals, Background Information 1973
Intended to help teachers by providing them with background knowledge to the investigations suggested in *Metals – Stages 1 & 2.*

Ourselves – Stages 1 & 2 1973
The emphasis of this Unit is on aspects of ourselves that can be discovered at first-hand. The activities suggested range from finger-printing and looking at footprints to measuring range of vision and reaction times.

Working with wood – Stages 1 & 2 95p
A book of practical suggestions supported by guidance about the choice and use of materials and tools.

Working with wood – Background Information 95p
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Like and unlike – Stages 1 & 2 1973
In many Units simple observations of the properties of things led to sorting and separating activities. Here, more ideas are collected together and, for those children who have reached Stage 3, these ideas are refined with an eye to some basic notions in science.

Science, models and toys - Stage 3 1973
Intended to carry on the work begun in *Science from toys, stages 1 & 2.* Ways are suggested for bridging the gap between the methods of primary and secondary schools.

Children and plastics – Stages 1 & 2 and Background 1973
For children, work with plastics could complement that with wood and metals. The objectives are similar and could be achieved by working with this modern material, looking at it and thinking about it critically.

A Unit is being prepared entitled *Understanding Science 5–13* that will help teachers to assess the value of the project to them, whatever their knowledge of science. There will be audio-visual material to support this if required. It can be used for group or individual study by students or teachers.

An affiliated source book *Using the Environment* by Dr Margaret Collis will also be published, both in four parts and as a whole. This is a book about field studies dealing with investigations and problems that children can discover and use as a basis for learning when their natural interest in outdoor surroundings is encouraged.

Part 1	*Early Explorations*	late	1972
Part 2	*Investigations*	spring	1973
Part 3	*Tackling Problems*	spring	1973
Part 4	*Ways and Means*	spring	1973

EVALUATION

Evaluator: Mrs Wynne Harlen

Evaluation has been concerned with discovering how effective the units were in helping teachers and enabling children to achieve some of the objectives. The Units have been produced and tried out in four sets, and the evaluation procedures and programmes have varied as experience has revealed the forms of information and trial organisation which have been most helpful. For the evaluation of the first set of units the children in the trial classes were tested at the beginning and end of the total work using test items presented by means of 8mm films sequences; the same tests were also given to an equal number of control classes. Teachers' opinions of the total units were also gathered by questionnaires and details of the learning environment and other relevant factors were obtained by visiting the trial classes. In trials of later sets of units different means of gathering information have been developed and the information used to revise the units before final publication. After each set of trials a report on the results has been produced for the teachers taking part.

A report on the evaluation of the project will be submitted to the Council with a view to publication before the end of the project.

An account of the evaluation of this project is given in a paper by Wynne Harlen, one of twelve contributions to a symposium of evaluation studies to be published in the 'Schools Council Research Studies' series by Macmillan Education in 1973.

TRAINING AND DIFFUSION

A number of national courses have been run for teachers and college of education lecturers interested in the work of the project. A network of local co-ordinators has been established, but it is perfectly possible to use the materials with no formal training (see *Understanding Science 5–13*).

The Council has recently granted the project further funds to enable it to continue its work on diffusion until September 1973.

RELEVANT PAPERS AND PUBLICATIONS

L.F. Ennever 'Helping children to learn science' *Dialogue* 1, September 1968
L.F. Ennever 'Science 5/13' *Education and Science,* No 33, June 1969
L.F. Ennever 'The new science' in *Teaching in the British Primary School,* ed. by Vincent Rogers, Collier-Macmillan 1970
'Early Experiences Science 5/13' *Dialogue* 6, August 1970
Report for Teachers on the Evaluation of the first set of Units
Report for Teachers on the Evaluation of the second set of Units (out of print)
Report for Teachers on the Evaluation of the third set of Units
Newsletter 1, June 1969 (out of print)
Newsletter 2, Spring 1971 (out of print)
'Science 5–13' *Dialogue* 11, May 1972.

FURTHER INFORMATION

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F

CHILDREN EXPLORE THEIR ENVIRONMENT: THREE FILMS
(SC 05 02)

DIRECTOR: J. Howard

LOCATION: Bishop Grosseteste College, Lincoln. **Telephone:** Lincoln (0522) 27347

DURATION: 1969–1971 **AGE RANGE:** 5–13 **GRANT:** £3,000

These three short films show how children in primary schools learn through the exploration of their environment and how they react when confronted with new problems and learning situations. Work on the films began when Mr Howard was seconded to the Nuffield Junior Science Project.

Children Observed (15 minutes. Colour. 16mm)
This shows children aged between five and nine in a number of potential learning situations/activities, both as individuals and in groups. Some of these are extremely free and in others the teacher has done little more than provide the materials and equipment. In no case is there strong teacher direction.

The main purpose of the film is for teacher-training, but it might also be of interest to parents. It presents samples of children's behaviour in physical activities, reactions to stimuli, imaginative and creative achievement and social interaction. It is intended that the film should be used to teach students how to observe children and that the students should analyse the role of the teacher in the film and suggest how the learning could be developed.

The film has a commentary by Miss Molly Brearly.

The Explorers (15 minutes. Colour. 16mm)
This film shows two comparative case-histories on science topics in a Darlington school. The experiments and investigations of the group of seven-year-olds started from a visit to a farm, and those of a group of ten-year-olds from questions about air. In each case the children chose to pursue certain questions in pairs, small groups or as individuals. The film explores the facets which they tackled and shows how they devised and carried out the appropriate experiments.

The emphasis in this film is on science activities for children of these ages and the importance of the children's own planning and reasoning. Neither teacher is seen in the film, although there is a great deal of evidence of the demanding yet subtle role each had had to fulfil. Much of the soundtrack is of children's questions and discussion.

The film is also intended for teacher-training.

From Small Beginnings (20 minutes. Black and white. 16mm)
This film shows how an environmental project can be developed in a most unpromising situation. The location is a large, uniform, urban estate. The class is a group of mixed-ability children of seven plus, and the teacher is a non-scientist. The project is developed from a visit to a nearby street and, although originally science-based, it came to involve art, English, maths and history. There is no commentary, simply a musical score.

The film is again intended for initial and in-service teacher training, and may also be interesting to parents and social workers.

FURTHER INFORMATION

Details of availability and cost will be announced shortly. Inquiries to the Schools Council Project Information Cnetre, 160 Great Portland Street, London WIN 6LL.

T/R

EDUCATIONAL USE OF LIVING ORGANISMS (SC 05 03)

DIRECTOR: Dr P.J. Kelly **RESEARCH ASSOCIATE:** J. Wray

LOCATION: Centre for Science Education, Chelsea College, Bridges Place, London SW6
Telephone: 01-736 3401

DURATION: 1969–1972 **AGE RANGE:** Whole age range **GRANT:** £21,000

AREA OF INQUIRY

This research project was initiated by the Institute of Biology/Royal Society Biological Education Committee inspired by the increasing demand in modern biology teaching for living organisms. It has three main objectives:

1. to determine the needs of schools with respect to living organisms and the associated educational, administrative and biological problems
2. to identify and evaluate the usefulness of different species of living organisms for educational and teaching purposes
3. to devise culture and maintenance techniques, suitable for use in schools, and relevant teaching procedures for the effective use of the most appropriate species.

PROCEDURES

A questionnaire was sent to over 300 primary and secondary schools in 18 LEAs in England and Wales as part of an initial survey to investigate which living organisms are currently found in schools, how they are maintained, how they are used and some problems associated with their maintenance and use. A report on this survey is given in the *Journal of Biological Education* (1971) 5. Work has also involved the development of maintenance techniques, associated equipment and the evaluation of the suitability of various species for use in schools.

Another important aspect of the work is the development of teaching techniques using living organisms, for example the use of 'mini-habitats'. The project has investigated ways of using small environmental chambers housing a very limited variety and number of living organisms as a flexible study unit suitable for many applications in schools. In this way many ecological topics could be studied in the school laboratory including, for instance, the influence of environmental factors, the flow of energy in a food chain and population numbers and their control.

MATERIALS

Publisher: English Universities Press, St. Paul's House, 8/12 Warwick Lane, London EC4P 4AH. Publication from April 1973.

Twelve booklets are in preparation, principally intended for teachers. These are:

Animal Accommodation for Schools
Small Mammals in Schools
Organisms for Genetics
Micro-Organisms
Plants
Organisms in Habitats: outside and in the school
Small Invertebrate Animals
Insects
Amphibians and Reptiles
Birds
Aquaria
Bees

Also in preparation is a *Source Book* which includes information on individual organisms suitable for use in schools, including biological information, source of supply, maintenance and use; information on the particular use of suitable organisms and outlines of appropriate techniques; and sections on medical and legal aspects of the use of living organisms, supply and conservation, and appropriate equipment and apparatus.

Wall-charts relating to *Small Mammals in Schools, Micro-Organisms* and *Amphibians and Reptiles* are also planned. These may also be available as slides or film-strips.

RELEVANT PAPERS AND PUBLICATIONS

John Wray ' Keeping Things Alive' *Dialogue* 7, February 1971
P.J. Kelly and J.D. Wray 'The Educational Use of Living Organisms' *Journal of Biological Education* (1971) 5, 213–218.

FURTHER INFORMATION is available from Mr John Wray at the project or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

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JUNE 1972

T/R

PROGRESS IN LEARNING SCIENCE (SC 05 04)

DIRECTOR: Mrs Wynne Harlen

LOCATION: School of Education, University of Reading, London Road, Reading RG1 5AQ.
Telephone: Reading (0734) 85234.

DURATION: 1973–1976 **AGE RANGE:** 5–13 **GRANT:** £26,000.

AREA OF INQUIRY

Matching children's science activities to the level of each individual's intellectual development has been recognised as important by the Science 5–13 project, among others. The experience of Science 5–13 (SC 05 01) has also revealed that teachers need help in diagnosing their children's levels of development in various scientific ideas and concepts, and the purpose of this further project is to develop materials to assist teachers with this part of their work.

When the project starts, in April 1973, it aims to produce:

1. check lists of statements to help teachers to structure and to record their observations of childrens' overt behaviour, which have a validated relationship with individual development
2. a guide to assist teachers in making use of the observations by indicating which kinds of scientific activities are appropriate at different developmental stages
3. a handbook giving an account of the production and validation of the check lists so that teachers can produce schemes of assessment matching their own particular way of working should they prefer to do so rather than use the materials produced by the project.

PROCEDURE

The work will start with a series of discussions with teachers to define different problems encountered in identifying stages of individual development and matching science activities to them. At the same time there will be a search of available literature on the assessment of individual children and a study of the work of those projects most relevant to this work, such as The Formation of Scientific Concepts (SC 07 01), and Nuffield Mathematics: Development of Individual Assessment Tests (MA 05 02).

Following this those approaches indicated as likely to be most fruitful will be developed. Drafts of observation check lists thought to be suited to the different setting in which children's learning of science is organised will be tried out in small scale pilot trials. These will then be revised and given further trials over a much wider geographical area on a representative sample of schools. Evaluation of these large scale trials will provide more reliable information for refining and revising the draft materials.

RELEVANT PAPERS AND PUBLICATIONS

L.F. Ennever and W. Harlen, *With Objectives in Mind: Guide to Science 5–13,* Macdonald Educational, 1972.

FURTHER INFORMATION is available from April 1973 from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

N.B. THIS PROJECT DOES NOT START UNTIL APRIL 1973.

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R/X

DEVELOPMENT OF SCIENTIFIC AND MATHEMATICAL CONCEPTS (SC 07 01)

DIRECTOR: Dr J. Rogers **ADVISER:** E. Rothwell Hughes

LOCATION: University College of North Wales, Bangor. **Telephone:** Bangor (0248) 3349

DURATION: 1968–1973 **AGE RANGE:** 7–11 **GRANT:** £19,300

AREA OF INQUIRY

Following the exploration of new approaches to the teaching of science and mathematics, and the work of such projects as Nuffield Mathematics (MA 05 01), Nuffield Junior Science, Science 5–13 (SC 05 01) and Environmental Studies 5–13 (HU 05 02), this research project was established:

1. to construct and carry out tests for use in the study of the development of scientific and mathematical concepts in children between the ages of seven and twelve
2. to attempt to relate this development to a) maturation of the pupil and b) ability (as measured by intelligence tests).

It was intended that the assessment material should be available for use by teachers as measures of development.

PROCEDURE

During the first phase the research team worked in close association with groups of teachers in North Wales, testing material with a sample of approximately 800 children. Concept assessment kits have been developed in Area, Weight and Volume, and the programme has included:

1. the construction of 'concrete' test material readily handleable by children
2. the grading of different test items in a sequence reflecting concept development in children
3. the construction of a standard questioning procedure
4. the construction of recording sheets which would enable the tester to analyse the responses of the children.

The second phase of the project has involved the testing of a sample of children from a wider geographical area in order to obtain additional information on conceptualisation processes.

Teachers in South Wales and the border counties have now been involved in the assessment procedure. This has enabled the team to increase the sample size and to receive teacher feedback on the feasibility of general usage of the material for assessment or as a framework for a teaching sequence in the classroom situation.

MATERIALS

Publisher: Not yet selected. Publication from late 1973.

It is intended to prepare the following material for publication:

1. a research report based on data from phases 1 and 2, and including details of the test items
2. Concept Assessment Kits for Volume, Area and Weight, validated for use by teachers with children of 7–11 years, and including recording sheets and instructions for use
3. a handbook dealing with the interpretation of results.

It is hoped that further material will consist of:

4. information about relevant material produced by other projects and by manufacturers of teaching apparatus which could be used with children to promote concept development in the three topics
5. a report on the use of the kits for teaching purposes as well as for testing.

RELEVANT PAPERS AND PUBLICATIONS

Copies of a paper given by Mr Rothwell Hughes to the British Association at Swansea in September 1971 are available from the project.

FURTHER INFORMATION is available from the project, or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

T/P

NUFFIELD COMBINED SCIENCE (SC 11 01)

DIRECTOR: M.J. Elwell

LOCATION: City of Birmingham College of Education, Westbourne Road, Birmingham B15 3TN **Telephone:** Birmingham (021)–454 5106

DURATION: 1965–1969 **AGE RANGE:** 11–13 **GRANT:** Nuffield only

AREA OF INQUIRY

Combined science is a method of introducing children to natural phenomena and to ways in which the children themselves can interpret these phenomena. It is an attempt to recapture the unity of outlook and consistency of method which belongs to the whole of science.

Combined Science is intended for children of about 11 to 13 and is adaptable for use with the whole range of ability. It can be used to lead into O-level courses in physics, chemistry and physics, whether Nuffield or non-Nuffield: Schools Council Integrated Science (SC 13 02) of other integrated science projects; Nuffield Secondary Science (SC 13 01) or any CSE or project work. It is envisaged that about 3 hours a week should be allocated to the work, arranged in units to suit the school timetable.

The materials are designed so that children have the opportunity of working in different ways in class, demonstration and circus investigations. Full opportunity has been taken to use children's first hand experience as a starter to the work outside the laboratory. The general aim has been to produce a source of ideas, materials and comment to allow teachers to devise their own courses, and the teacher's guide contains explicit procedures for carrying out experiments as well as teaching notes which, by suggesting definite examples, exemplify the philosophy underlying the project's work.

All materials have been tested in some 30 schools, and revised in the light of comments from teachers and children.

MATERIALS

Publisher: Penguin Education, Harmondsworth, Middx. and the Longman Group, Pinnacles, Harlow, Essex, from whom inspection copies are available. Orders should be placed through normal suppliers. Prices are correct at time of going to press.

Pupil Material

There are 10 pupils' booklets entitled *Activities.* These booklets are not textbooks: they contain instructions (a) for some of the class experiments, (b) for all the 'circus' of experiments, as well as stimulating photographs, thought-provoking questions, starters for class discussion, and some background. The ten main subject areas covered are: The world around us; Looking for patterns; How living things begin; Air; Electricity; Water; Small things; Earth; Insects; Energy. There is sufficient material to help children working at different paces. There are in addition a number of reference sheets, telling children how to operate certain items of apparatus and giving instructions on some of the techniques that go with their use. These booklets are intended also to act as examples of how teachers might produce their own pupil material in areas other than those represented in the booklets. They are not to be regarded as the only and final source of work for pupils.

Activities Pack I (1–5) £1.45
Activities Pack II (6–10) £1.35

Teacher materials

Teachers Guides I and II contain a comprehensive set of instructions on how to set up all the experiments including a detailed list of requirements. Each experiment is preceded by an introduction which indicates how work can be developed and related to other topics. *Teachers Guide III* is a handbook with chapters giving advice on items of equipment, care of animals and plants, and topics such as safety and note-taking. It also contains lists of apparatus and materials, recommended books and other teaching aids, addresses, instructions on how to make items of equipment cheaply and an appendix on teaching mathematics in relation to combined science. *Teachers Guide III* is not an optional text; it contains many points which are essential and is continually referred to in *Teachers Guides I and III.*

Teachers' Guide I £2.75
Teachers' Guide II £2.50
Teachers' Guide III £1.75

Class material

18 colour film loops in Standard and Super 8, with a set of teaching notes, price £5.25 and £6.25 respectively. One black and white loop price £3.75, £4.50.

African clawed toad – injections and pairing
Male rat – finding the reproductive system
Female rat – finding the reproductive system

the children themselves can interpret these phenomena. It is an attempt to recapture the unity of outlook and consistency of method which belongs to the whole of science.

Combined Science is intended for children of about 11 to 13 and is adaptable for use with the whole range of ability. It can be used to lead into O-level courses in physics, chemistry and physics, whether Nuffield or non-Nuffield: Schools Council Integrated Science (SC 13 02) of other integrated science projects; Nuffield Secondary Science (SC 13 01) or any CSE or project work. It is envisaged that about 3 hours a week should be allocated to the work, arranged in units to suit the school timetable.

The materials are designed so that children have the opportunity of working in different ways in class, demonstration and circus investigations. Full opportunity has been taken to use children's first hand experience as a starter to the work outside the laboratory. The general aim has been to produce a source of ideas, materials and comment to allow teachers to devise their own courses, and the teacher's guide contains explicit procedures for carrying out experiments as well as teaching notes which, by suggesting definite examples, exemplify the philosophy underlying the project's work.

All materials have been tested in some 30 schools, and revised in the light of comments from teachers and children.

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African clawed toad – injections and pairing
Male rat – finding the reproductive system
Female rat – finding the reproductive system

A variety of animals and movements – I
A variety of animals and movements – II
Birth – calf and baby (black and white)
Growth of a bean shoot – measurement
Contact electricity in industry
Detergency
Desalination
A fish – movement in slow motion
A frog – movement in slow motion
Buoyancy of gases
Fertilisation in the flowering plant
Gases of the air at work
Hydrogen
Air in motion
Large scale forces
Manufacture of steel

DIFFUSION AND TRAINING

In-service training courses are held at the City of Birmingham College of Education (residential 14 days duration) and at the Chelsea College Centre for Science Education (non-residential). Further details of these are available from the respective Registrars.

RELEVANT PUBLICATIONS

'Science: Nuffield and Schools Council' *Dialogue* 4, November 1969

FURTHER INFORMATION

Is available from the project director.

Copies of all published materials are available for reference at the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

N.B. The Nuffield Foundation has recently set up an investigation under the direction of Mr C.D. Bingham and Mr M.J. Elwell into the use of Combined Science in middle schools. The aim will be to produce a guide for all those concerned with science in middle schools. Further details from the Nuffield Combined Science Continuation Project, Chelsea College, Bridges Place, London SW6.

T/P/R

PROJECT TECHNOLOGY (SC 11 02)

DIRECTOR: G.B. Harrison *

LOCATION: Loughborough College of Education, Lougborough, LE11 OBR.
Telephone: Loughborough (05093) 61558

DURATION: 1967–1972 **AGE RANGE:** 11–18 **GRANT:** £270,000

EVALUATOR: D.A. Tawney, Institute of Education, University of Keele, (1969–1972. £17,000).

AREA OF INQUIRY

Project Technology was established as the result of a one-year pilot study undertaken by Mr Geoffrey Harrison during 1966 -1967 on behalf of the Schools Council into the place of technology in the curriculum. This study was published as *Technology and the Schools,* Schools Council Working Paper 18, and recommended:

1. the need for development to ensure that the role of technology in society is given a proper place in the curriculum
2. the need for development to help schools give girls and boys experience of technological problem-solving situations of a practical kind
3. that the successful development of technological studies through project work will depend on the development of curricular courses in those fields which are conducive to technological work.

Project Technology was established in 1967 to design, test and arrange publication of teaching materials for schools wishing to include in their curriculum work in and about technology, and to stimulate outside support of all kinds for the schools.

The project is concerned:

1. to see that all children become aware of the technological forces which are working on them, and which they have at their disposal, and that they are aware of their ability and responsibility to control these forces
2. to see that as many children as possible, of all ages and abilities, have the opportunity to become involved in the technological design process
3. to help all children push forward the frontiers of their own technological resources in terms of theoretical knowledge and practical skills.

PROCEDURE

In addition to the preparation of teaching materials, details of which are given in the following section, the project has built up a network of groups of schools and institutions of further and higher education. Some 30 regional groups and sub-groups were established to provide local support for school activities, to spread the philosophy of the project, and to assist with the trial of teaching material. Details of these are given in *School Technology* 19. The work of local centres is reviewed in *Support for School Science and Technology,* Schools Council Working Paper 38. The project has worked closely with the Schools Science and Technology Committee since its inception in 1968, and has been involved in the establishment of the Standing Conference for School Science and Technology.

School Technology, published by the project quarterly, is now issued on a subscription basis and is available from the National Centre for School Technology, Trent Polytechnic, Nottingham. The project also produced SATIS (Science and Technology Information Sources for Teachers) 5 times a year in association with Esso Petroleum Limited.

A trial Surplus Buying Agency, buying government surplus materials, components and equipment for the use of schools, has been running for two years in Nottingham, with sub-depots in Bristol, Lincoln, Sheffield, Southampton, Stevenage, Rugby, Stoke, Swindon and Gloucester. A Consortium, under the auspices of Leicestershire Education Authority, is now administering the Agency, and inquiries should be sent to Mr A.W. Surguy, Building A1, University Park, Nottingham, NG7 2RD.

MATERIALS

All teaching materials have been prepared as the result of an assessment of what was required in the schools, have been tested in a number of schools, and revised in the light of these trials. Materials can, roughly speaking, be divided into four categories, the first two intended mainly for teachers, and the last two for teachers and pupils.

For teachers

1. **Project Technology Handbooks** to help fill gaps in the teacher's knowledge and experience, help him or her initiate and supervise technological activities, and give guidance on the availability, use and construction of apparatus.

   Publisher: Heinemann Educational Books Limited, 48 Charles Street, London W.1. from September 1972.

   Titles are as follows:

Engine Test Beds	September 1972
Simple Materials Testing Equipment	September 1972
Bernouilli's Principle and the Carburettor	September 1972
The Ship and her Environment	September 1972
Simple Bridge Structures	September 1972
Introducing Fluidics	September 1972
Muffle Furnaces	1973
Design with Plastics	1973
Simple Fluid Flow	1973
Industrial Archaeology for schools	1973
Food Science and Technology	1973
Basic Electrical & Electronic Construction Kits	1973
Computer and Control Logic	1973
The What, Why and How of School Technology	1973

2. **Review Material.** Case Studies and methods of operation which have helped schools in introducing and developing technological activities, and reprints from Project Technology Bulletins and other publications.

   Publisher: English Universities Press Ltd., St. Paul's House, Warwick Lane, London EC4P 4AH.

   Schools Science and Technology 1: Applications of Science. Revised edition 1970, 75p. Selected descriptions and case histories of applied science projects and investigations.

   Schools Science and Technology 2: Science Fairs. 1970, 75p. Selected descriptions and case histories from BBC TV's Science Fairs.

   School Technology Volume 1, 1971, 60p. Edited reprints from 1968 issues of Bulletin.

   School Technology Volume 2, 1971, 75p. Edited reprints from 1969 issues of Bulletin.

For teachers and pupils

3. **Technology Briefs** aim to inspire and guide pupils in order to involve them personally and directly in the technological design process. The briefs therefore suggest fields of activity and identify some of the problems in these fields, but allow different interpretations. Each brief carries an indication of whether its principal purpose is Constructional, e.g. vacuum forming apparatus, or Investigational, e.g. aircraft noise, although many are written with both purposes in mind. There will be approximately 100 briefs.

   Publisher: Heinemann Educational Books Limited. From late 1972.

4. **Course Material**

   a. Complete Courses

   Basic Electronics. A two or three year course for 13/14 year old pupils of average ability, or to be used as a shorter more intensive course by older pupils, and even by teachers themselves.

   Publisher: English Universities Press Limited, 1973.

   Control Technology. A two or three year Mode 3 CSE course consisting of pupil assignments and supporting text involving the use of purpose-built constructional units and a teacher's guide.

   Publisher: English Universities Press Limited, 1973.

   b. Course Components and Resource Material

   Photocell Applications. Pupils' and teachers' guide for use with average and above average ability pupils.

   Publisher: English Universities Press Limited, late 1972.

   Fibres in A-level Chemistry. A pupil/teacher handbook of background material and investigational briefs.

   Publisher: English Universities Press Limited, 1973.

Technology and Man. To be published in 3 sections: *Communication, Environment* and *Energy.* Each title will consist of a large multi-media integrated studies pack and teachers' guides for use with pupils aged 9–14.

Publisher: Blackie and Son Ltd., Bishopbriggs, Glasgow and University of London Press Ltd., St. Paul's House, Warwick Lane, London EC4P 4AH from 1973.

History Units. In 4 sections: *The Power Of Steam, The Age of Iron and Steel, The Textile Revolution* and *The Making of Machines.* Each title will consist of a pupils' resource package and teachers' guide. For incorporation into O-level and CSE Social and Economic History courses.

Publisher: Edward Arnold Ltd., 41 Maddox Street, London W1R OAN from 1973.

EXAMINATIONS

The project has been working with examination boards to encourage the development of appropriate syllabus and assessment procedures.

EVALUATION

Evaluator: D.A. Tawney

The evaluation unit, based at Keele University since 1969, has so far produced internal reports on the Bulletin (renamed *School Technology* in January 1971), SATIS, teaching material on Photocell Applications, Control Technology, Basic Electronics, sections of Technology and Man, and History Units, two of the early Project Technology Handbooks, and the project briefs. A final report will be submitted to the Schools Council in August 1972 with a view to publication.

An account of the evaluation of this project is given in a paper by David Tawney one of twelve contributors to a symposium of evaluation studies to be published in the series 'Schools Council Research Studies' by Macmillan Education in 1973.

TRAINING AND DIFFUSION

The project's work has been disseminated through its regional centres and through *School Technology.* A new department concerned with technical education at secondary, further and higher levels is to be set up at Trent Polytechnic, Nottingham, within which a National Centre for School Technology will be established under the direction of Mr G.B. Harrison (formerly director of Project Technology). This centre will initiate teacher training and stimulate further curriculum development. The inservice teacher training programme will include courses designed to familiarise teachers with the work of Project Technology.

The project has been represented on the Standing Conference on School Science and Technology (details of this body from the acting Secretary Mr T.L. Robbins, Institution of Mechanical Engineers, 1 Birdcage Walk, London SW1) and has played a part in the establishment of a School Technology Forum (details from the Secretary Mr G.B. Harrison).

RELEVANT PAPERS AND PUBLICATIONS

'Mind-making or machine-making?' *Dialogue* 1, September 1968.

Schools Council *Technology and the Schools* (Working Paper 18), HMSO 1968. Out of print.
An account of the feasibility stage of the project.

Occasional Paper 1: *Science and Technology for girls,* 1969. Out of print.

Occasional Paper 2: *Project Work in A-level Physics* by L.J. Taylor, 1969. 25p from the Centre for School Technology, Trent Polytechnic.

Local Science and Technology Centres, 25p from the Centre for School Technology, Trent Polytechnic.

Young Technologist, 1970, 25p from the Centre for School Technology, Trent Polytechnic. An account of an experiment by boys at Gateway School, Leicester, which won the second European Philips Contest for Young Scientists and Inventors.

Schools Council *Support for School Science and Technology* (Working Paper 38), Evans/Methuen Educational, 1971.

School Technology, formerly *Bulletin.* Quarterly from the Centre for School Technology, Trent Polytechnic. Annual subscription £1.50 (teachers and students £1.00).

Computer Education, termly, annual subscription 50p. Available from Computer Education Group. North Staffordshire Polytechnic, Beaconside, Stafford.

FURTHER INFORMATION

Items listed above, samples of trial material and such material as is published are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

* Further information is available from Mr. G.B. Harrison, Centre for School Technology, Trent Polytechnic, Burton Street, Nottingham NG1 4BU telephone: Nottingham (0602) 48248, or from the Schools Council Project Information Centre.

T/P

NUFFIELD SECONDARY SCIENCE (SC 13 01)

ORGANISER: Mrs Hilda Misselbrook

LOCATION: Centre for Science Education, Chelsea College of Science and Technology, Bridges Place, London SW6 **Telephone:** 01-736 3401

DURATION: 1965–1970 **AGE RANGE:** 13–16 **GRANT:** Main cost–Nuffield Foundation; Schools Council, £9,000 (for evaluation and CSE Mode 3 work).

AREA OF INQUIRY

This project is concerned with science for those pupils of 13–16 who are unlikely to take GCE O-level in science, and is based upon the ideas expressed in Schools Council Working Paper 1 *Science for the Young School Leaver.* This suggested that the main criterion of the work in this field should be that the work had significance for the pupils, and this criterion has been maintained as the materials have been developed. Emphasis was also given in the Working Paper to the involvement of pupils through their own experimental investigations of problems which are real to them, and such investigations constitute a major part of the work.

Appraisal of data and evidence collected through the pupils' own investigations is seen to be an essential step to looking critically at the evidence collected by others. Discussion at a number of levels from a simple discussion by the pupils of their own experimental results to one in which they consider a social or moral problem which has arisen during a piece of work is an important element in the work.

For a number of reasons, including the wide ability range of the pupils concerned, the differences in their interests and environments, and the variety of schools they attend, Nuffield Secondary Science is not designed as a course. It is material which is flexible and capable of adaptation so that from it teachers can select material from which to construct coherent courses which are relevant to their own pupils. The content is contained in the eight themes listed below which were suggested in Working Paper 1 as being fundamental for all pupils. The work ignores the traditional boundaries between science 'subjects' and areas are included which have not normally appeared in school science courses in the past.

TRIALS

Four months after the inception of the project a feasibility trial lasting about 7–8 weeks was held in 16 schools. Development trials 1967–68 were held in 53 schools and the number increased in the following year to 212. An additional 54 schools were involved in the third and final year trial, 1969–70.

MATERIALS

Publisher: Longman Group Ltd., Pinnacles, Harlow, Essex from May, 1971. Inspection copies are available from the publisher, but all orders should be placed with booksellers or educational suppliers in the normal way. Prices given below are correct at time of going to press.

Teachers Books

Teachers' Guide £1.25
An essential introduction to the project, containing a summary of objectives and approach, detailed descriptions of the content and arrangement of the Themes, a discussion of the appropriate teaching techniques, and advice on course construction.

Theme 1 *Interdependence of living things* £1.50
Environmental studies, classification and identification; basic exchanges; animal and plant growth; population studies; colonization; disease; pest and weed control.

Theme 2 *Continuity of life* £2.00
Animal and plant reproduction and propagation; the mechanism of inheritance; the process of evolution.

Theme 3 *Biology of man* £2.00
Physical activity; the human life cycle; reproduction growth and development; health and hygiene; senses, behaviour and learning; man in the world: control of the environment.

Theme 4 *Harnessing energy* £1.50
Energy in action; man's energy, his physical limitations and use of machines; electrical transmission of energy; problems of bringing energy to bear.

Theme 5 *Extension of sense perception* £1.50
Human limitations; hearing and the nature of sound; seeing and the behaviour of light; artificial aids to communications and recording.

Theme 6 *Movement* £1.50
Transport; natural movement of living things.

Theme 7 *Using materials* £2.00
Collection, classification and preliminary investigations; metals and alloys; fuels; synthetic materials and natural products: building materials and modern plastics, cleaning and coating materials, fibres and fabrics; radioactive materials.

be that the work had significance for the pupils, and this criterion has been maintained as the materials have been developed. Emphasis was also given in the Working Paper to the involvement of pupils through their own experimental investigations of problems which are real to them, and such investigations constitute a major part of the work.

Appraisal of data and evidence collected through the pupils' own investigations is seen to be an essential step to looking critically at the evidence collected by others. Discussion at a number of levels from a simple discussion by the pupils of their own experimental results to one in which they consider a social or moral problem which has arisen during a piece of work is an important element in the work.

For a number of reasons, including the wide ability range of the pupils concerned, the differences in their interests and environments, and the variety of schools they attend, Nuffield Secondary Science is not designed as a course. It is material which is flexible and capable of adaptation so that from it teachers can select material from which to construct coherent courses which are relevant to their own pupils. The content is contained in the eight themes listed below which were suggested in Working Paper 1 as being fundamental for all pupils. The work ignores the traditional boundaries between science 'subjects' and areas are included which have not normally appeared in school science courses in the past.

TRIALS

Four months after the inception of the project a feasibility trial lasting about 7–8 weeks was held in 16 schools. Development trials 1967–68 were held in 53 schools and the number increased in the following year to 212. An additional 54 schools were involved in the third and final year trial, 1969–70.

MATERIALS

Publisher: Longman Group Ltd., Pinnacles, Harlow, Essex from May, 1971. Inspection copies are available from the publisher, but all orders should be placed with booksellers or educational suppliers in the normal way. Prices given below are correct at time of going to press.

Teachers Books

Teachers' Guide £1.25
An essential introduction to the project, containing a summary of objectives and approach, detailed descriptions of the content and arrangement of the Themes, a discussion of the appropriate teaching techniques, and advice on course construction.

Theme 1 *Interdependence of living things* £1.50
Environmental studies, classification and identification; basic exchanges; animal and plant growth; population studies; colonization; disease; pest and weed control.

Theme 2 *Continuity of life* £2.00
Animal and plant reproduction and propagation; the mechanism of inheritance; the process of evolution.

Theme 3 *Biology of man* £2.00
Physical activity; the human life cycle; reproduction growth and development; health and hygiene; senses, behaviour and learning; man in the world: control of the environment.

Theme 4 *Harnessing energy* £1.50
Energy in action; man's energy, his physical limitations and use of machines; electrical transmission of energy; problems of bringing energy to bear.

Theme 5 *Extension of sense perception* £1.50
Human limitations; hearing and the nature of sound; seeing and the behaviour of light; artificial aids to communications and recording.

Theme 6 *Movement* £1.50
Transport; natural movement of living things.

Theme 7 *Using materials* £2.00
Collection, classification and preliminary investigations; metals and alloys; fuels; synthetic materials and natural products: building materials and modern plastics, cleaning and coating materials, fibres and fabrics; radioactive materials.

Theme 8 *The Earth and its place in the Universe* £2.00
Getting away from the earth; the solar system and beyond; the weather; the earth's crust.

A set of eight Themes costs £12.50.

Apparatus guide £3.00
Containing details of apparatus and materials required.

Examing at CSE level December 1972. Approximately £2.00
A consideration of some practical aspects of assessment and evaluation.

Pupils Books
Two background books have been prepared – *Britain's fuels* and *Rocks, minerals and fossils.* This series is to be extended in a series written by the team.

Visual Aids
Some 30 standard 8 film loops are also available and form an integral part of the material. Prices vary, but are approximately £4.00 for black and white loops and £5.00 for colour. All loops are accompanied by detailed notes giving suggestions of approximate methods of use and background information for the teacher.

Eight sets of slides and two packs of black and white pictures are also available.

EXAMINATIONS

In 1970, 13 trial schools presented candidates for a Mode 3 CSE examination based on the material, in some cases for two subject passes. *Examining at CSE Level* to be published in 1972, has been prepared to help teachers using Secondary Science to prepare Mode 3 examinations on the material.

EVALUATION

A full on-going assessment continued throughout the trials and the texts were completely rewritten twice in the light of information obtained from the teachers by means of detailed questionnaires. In development trials, each team member was assigned to a group of schools in order to observe the trial lessons and report on the problems encountered. In the following year this work was mainly carried out by two team members seconded full time for this purpose.

An evaluation study supported by the Schools Council was started in September 1969. Miss D. Alexander who was appointed to carry out this work decided to investigate three aspects of the project:

1. changes in the popularity of science observed by the trials teachers involved in 1967–68 and 68–69 were investigated using a structured questionnaire
2. changes in various aspects of the pupils' attitude towards science as measured by responses to the NFER Pupil Opinion Poll 104 (attitudes to Science Scales (SC 14 02)) were investigated in schools starting trials for the first time in September 1969. The Poll was administered at the beginning and end of the school year 1969–70. A parallel comparative study was carried out in 22 schools where the project had not been implemented
3. changes in the degree of pupil participation and in teaching style were recorded in 10 of these trial schools in which the Pupil Opinion Poll was used. Expert observers visited classes approximately three times a term using a structured observation schedule to record their findings.

The report of this evaluation will be published in 1973.

TRAINING AND DIFFUSION

Many experienced trials teachers are active in the work of dissemination not only within their own authority but on in-service courses elsewhere.

In-service courses staffed by team members and trials teachers are held at the Centre for Science Education, Chelsea, at a number of colleges of education and at many teachers' centres. In addition courses for teachers of science in the secondary school organised by the DES are liekly to include aspects of the Secondary Science material.

RELEVANT PUBLICATIONS

Schools Council *Science for the Young School Leaver* (Working Paper 1),HMSO 1965 free from the Schools Council. (This is now rather out-of-date. The Teachers Guide (see materials) gives a fuller and more recent introduction to the project).
Schools Council *Choosing a curriculum for the Young School Leaver* (Working Paper 33), Evans/Methuen Educational, 1971.

FURTHER INFORMATION on the project is available from the proejct director. A complete set of printed materials are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

is mainly suitable for those wishing to proceed to further study in any of the nine schools to teach

T/P/X

INTEGRATED SCIENCE PROJECT (SC 13 02)

DIRECTORS: W.C. Hall and B.S. Mowl

LOCATION: Centre for Science Education Annexe, Chelsea College, 90 Lillie Road, London SW6. **Telephone:** 01-385 5506

DURATION: 1969–1975 **AGE RANGE:** 13–16 **GRANT:** £110,100 (+£4,500 from the Ministry of Education in N. Ireland for trials in N. Ireland + £12,000 from AEB for assessment).

AREA OF INQUIRY

The project was established to develop an integrated science course of double O-level value for 13–16 year-old pupils and of a sufficient standard to provide a satisfactory basis for all existing A-level science courses. It is envisaged that this course will require one fifth of the school timetable.

Both Nuffield Combined Science (SC 11 01) and Schools Council 5/13 (SC 05 01) provide suitable foundations for this course.

THE COURSE

It is hoped that pupils will achieve the following aims:

Skills

Pupils should be able to demonstrate their degree of competence in

1. (a) recalling and (b) understanding those concepts which would enable them to pursue science (courses in Physics, Biology, Chemistry or Physical Sciences) to a higher level or as a hobby
2. (a) recalling and (b) understanding those patterns which are of importance to the scientist
3. making critical appraisal of available information (from whatever source) as an aid to the formulation or extraction of patterns
4. using patterns and making critical appraisal of available information (a) in order to solve problems and (b) make reasoned judgements
5. organising and formulating ideas in order to communicate them to others
6. understanding the significance, including the limitations, of science in relation to technical, social and economic development
7. being accurate in the reporting of scientific work
8. (a) designing and performing simple experiments (in the laboratory and elsewhere) to solve specific problems and (b) showing perserverance in these and other learning activities.

Attitudes

Pupils should

9. be able to work individually and as part of a group
10. be sceptical about suggested patterns yet willing to search for and to test for patterns
11. be concerned for the application of scientific knowledge within the community.

The content of the work is based on three fundamental ideas - building blocks, interactions and energy. Throughout the three years there will be a continuous search for 'patterns' which are important generalisations and these will then be used to solve problems of a practical and a theoretical nature. The project aims to educate *through* science as well as *in* science, and so is particularly concerned with the sociological implications and technical applications of science.

Ideally it is hoped that a single teacher will eventually be able to deal with the course. There are possibilities for team teaching, but it would, of course, be antithetical to the nature of integration if the material were divided into subject areas separately taught by specialists.

MATERIALS

Publisher: Longman and Penguin from Spring 1973.
There will be a teachers' handbook, four pupils' manuals, four teachers' guides, about twenty background books, and four technicians' manuals. These will be structured round the three main areas - building blocks, energy and change and sections at trial stage are as follows:

Part I: Building Blocks (approximately 3½ terms)
galaxies, planets, the earth and life; communities and populations, organisms; cells and the development of organisms; molecules; atoms and giant structures; ions and the electron; particle interactions; electrical interactions; competition and co-operation; classification; distribution of building blocks.

Part II: Energy (approximately 2 terms)
doing work; fuels and food; waves; electricity and energy.

Part III: Change (approximately 3 terms)
changes in behaviour, in acidity, in motion, in the earth, in organisms, in atoms, in molecules, in populations, in the environment, and in society; stability.

These materials are being tested in 31 trial schools, mainly in London, Birmingham and N. Ireland and evaluated and revised before final publication.

EXAMINATIONS AND ASSESSMENT

Integrated Science will lead to a double credit at O-level. A single credit will also be available. Five papers are provisionally planned, together with teacher assessment.

Paper 1 A multiple-choice paper testing aims 1, 2 and 3
Paper 2 A multiple-choice paper testing aims 1, 2 and 4 (a). A variety of types of problem will be set
Paper 3 Essay/short answer paper testing aims 4 (a) 4 (b), 5 and 8 (a)
Paper 4 Essay/short answer paper testing aims 4 (b), 5 and 6
Paper 5 Essay/short answer paper testing aims 5, 6 and 10 (a)

Teacher assessment of aims 5, 7, 8, 9 and 10 (b) will also take place.

The Associated Examining Board is to conduct an experimental examination on behalf of all GCE Boards, in close association with the Joint Matriculation Board; acceptance of the examination for university entrance purposes has been negotiated through SCUE and is being negotiated for national certificate courses through the various Standing Committees.

The first GCE O-level examination, administered by the AEB, will be taken in the summer of 1973.

A Working Party on assessment under the chairmanship of Dr D Pidgeon of the NFER has been formed in order to assist in the planning of assessment.

EVALUATION

The project team are evaluating books, teaching methods, pupil attitudes to sections of the work, usefulness of apparatus etc. by means of feedback forms completed by trial school teachers and by teachers' meetings and classroom observation.

DIFFUSION AND TRAINING

From September 1973 onwards, each local authority will be invited to nominate one or two schools to start teaching Integrated Science, using either trial or published material according to availability. Training Courses at the Centre for Science Education are also being planned, and details of these will be available from the project.

RELEVANT PAPERS AND PUBLICATIONS

Integrated Science Bulletin - available termly, from the Project at 12½p per annum
Schools Council Integrated Science Brochure, November 1969. Free from the Schools Council.
Schools Council Integrated Science Project & Further Education. Free from the Schools Council.
W.C. Hall and B. Mowl 'What does SCISP mean by Integrated Science',*Education in Science* June 1970
W.C. Hall 'Integrated Science: A patterns approach to Science teaching', *Physics Education* Vol 7 1972
W.C. Hall 'Case Study in Curriculum Decision Making: the Schools Council Integrated Science project', *Australian Science Teachers Journal,* October 1971
W.C. Hall 'The Need for Integrated Science', *Education in Science* November 1971
W.C. Hall 'The Schools Council Integrated Science Project', *Geology* Vol 3, 1970.

FURTHER INFORMATION

Copies of all trial materials and articles listed above are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

Further information is available from the project directors or from the Schools Council Project Information Centre.

R/X

MEASUREMENT OF UNDERSTANDING OF PUPILS IN LEARNING SCIENCE (SC 14 01)

DIRECTOR: Professor F.W. Wagner

LOCATION: Institute of Education, The University, Southampton SO9 5NH

DURATION: 1966–1969 **AGE RANGE:** 14–16 **GRANT:** £16,335

AREA OF INQUIRY

The project was established as part of a proposal to evaluate Nuffield O-level science materials, and its aim has been to produce a set of tests of cognitive attainment which can be used to compare the outcome of different teaching methods in O-level science courses. See also Attitudes to Science Scales (SC 14 02) and Evaluation of Science Teaching Methods (SC 14 03).

PROCEDURE

The function of the test was clearly defined and a list made of subject material to be used in test items. Some 1,000 items were produced by a group of writers commissioned by the project. Groups of these items were put together to form 15 minutes tests, and the tests were tried in a number of schools. The most discriminating and valid items were extracted for use in second stage trials.

FINAL PUBLICATION

The tests and teachers' manual are being used by the Evaluation of Science Teaching Methods Project during 1971–2, and it is hoped that these will be generally available late in 1973.

FURTHER INFORMATION regarding the availability of the tests from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

X/R

'ATTITUDES TO SCIENCE' SCALES (SC 14 02)

DIRECTOR: Dr L.S. Skurnik *

LOCATION: National Foundation for Educational Research, The Mere, Upton Park, Slough, Bucks. **Telephone:** Slough (75) 28161

DURATION: 1966–1969 **AGE RANGE:** 14–16 **GRANT:** £17,287

AREA OF INQUIRY

This project was established as part of a proposal to evaluate Nuffield O-level science materials and O-level science teaching in general. See also Evaluation of Science Teaching Methods (SC 14 03) and Measurement of Understanding of Pupils in Learning Science (SC 14 01).

The aims of the project were:

1. to define the attitudes of secondary school pupils towards science
2. to develop reliable and valid scales by which these attitudes may be recognised and assessed
3. to relate the scores on these scales to variables such as the sex of the pupil, ability, etc.

PROCEDURE

Interviews were held with a number of secondary school pupils on their attitudes to science and to school, and this led to the production of over 3,000 attitude statements. The statements were analysed and tested and grouped under five main headings: Science interests, Science in Society, Learning activities in science, Science teachers, and School.

The 70 best items were selected to form two final questionnaires: one in which the items were grouped under the five main headings above, and one in which they appeared in random order.

During the summer of 1968 these questionnaires were completed by more than 2,000 CSE and GCE candidates and the results analysed. The questionnaires have also been administered to a large sample of fourth form pupils who have been similarly assessed by other measures of personality, attitude, and scholastic aptitude.

PUBLICATION

The attitude scales, and examiners manual have been published by the NFER and are available from their Publishing Division at 2 Jennings Buildings, Thames Avenue, Windsor, Berks. SL4 1QS.

Questionnaires	£1.90 per 100 copies
Scoring guides	30p per pad (50 sheets)
Administrators manuals	30p
Sample set of 1 questionnaire, 1 manual, 1 scoring guide	32p

A Technical Manual, including a report of the project and setting the scales into the context of the testing field is in preparation.

FURTHER INFORMATION

These publications are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

* Dr Skurnik has now left the NFER.

73

R

EVALUATION OF SCIENCE TEACHING METHODS (SC 14 03)

DIRECTORS: Professor J.F. Kerr and J.F. Eggles

LOCATION: School of Education, University of Leicester, 21 University Road, Leicester LE1 7RF **Telephone:** Leicester (0533) 24211

DURATION: 1970–1973 **AGE RANGE:** 14–16 **GRANT:** £21,300

AREA OF INQUIRY

This project was established as part of a proposal to evaluate Nuffield O-level science teaching in general. (See also Attitude to Science Scales (SC 14 02) and Measurements of Understanding of Pupils in Learning Science (SC 14 01)).

The aim of this research is to classify science teachers according to their preferred style of teaching, using the Science Teaching Observation System (STOS). The effectiveness of each style will be evaluated by measuring pupils scores on attainment and attitude tests.

The main hypotheses to be tested are:

1. that the teacher's preferred teaching style in any given science subject will affect his pupils scores in attainment tests for that subject
2. that the teacher's preferred teaching style in any given science subject will affect his pupils' attitude towards the particular subject and towards science in general.

The effectiveness of the teaching style relative to the pupils' ability and to the science subject taught will also be taken into account.

PROCEDURE

The project is working with a countrywide sample of 113 teachers of pupils in the penultimate year of the O-level science course. The teachers are being observed by forty tutors from colleges and university departments of education, each teacher being observed on four occasions. A more intensive study will be carried out using five teachers in the Leicester area to collect information concerning the reliability of the observation schedule.

In the first year an observation schedule, the Science Teaching Observation System (STOS), was devised and tested in a pilot study. This system facilitates accurate reporting of teacher and pupil behaviours in the cognitive domain during science lessons. A manual for observers has been written and a videotape made to illustrate the various categories in the observation schedule.

Pupil ability has been tested, using the Southampton cognitive tests (see Measurement of Understanding of Pupils in Learning Science) and a modified form of the NFER Pupil Opinion Poll. Cognitive tests in chemistry, biology, and physics have been written as supplementary material.

FINAL PUBLICATION

The final report will include identification of teaching styles and information of their relative effectiveness with pupils of different ability groups. In addition the project will produce:

1. an annotated bibliography, in the form of a 'conceptual map', of the problems attendant in this kind of research and of the relationship between this research and other similar evaluation studies of the process-product type
2. a manual and the videotape for training observers. This will enable anyone using the system to train themselves
3. attainment test items of cognitive skills in science. Details of the additional items used in the pre-tests and modifications in the Pupil Opinion Poll will be published.

FURTHER INFORMATION is available from the project directors or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

P/T

NUFFIELD A–LEVEL BIOLOGICAL SCIENCE (SC 16 01)

DIRECTOR: Dr P.J. Kelly

LOCATION: Centre for Science Education, Chelsea College of Science and Technology, Bridges Place, London SW6 **Telephone:** 01-736 3401

DURATION: 1965–1970 **AGE RANGE:** 16–18 **GRANT:** Nuffield only

The Advanced Biological Science project is one of the Nuffield Advanced Science Teaching Projects; the others are Chemistry, Physics, and Physical Science.

The materials produced for Biological Science do not represent a rigid syllabus. They have been devised after careful evaluation of the results of extensive school trials so that they can be used in a variety of ways, related to the different circumstances found in schools and the varied abilities, backgrounds, and aspirations of students.

The work has three major objectives:

1. to develop in students the intellectual and practical abilities which are fundamental to the understanding of biological science
2. to introduce students to a body of biological knowledge relevant to modern requirements, through investigating living things and studying the work of scientists. In doing this, students will consider the processes of research and the implications of science for society
3. to develop in students a facility for independent study, developing especially their ability to learn through critical evaluation rather than memorizing by rote.

MATERIALS

Publisher: Penguin Books Limited, Harmondsworth, Middlesex from whom further information and materials are available. Publication from 1970. Prices given below are correct at time of going to press.

The subject matter is covered in four units, each of approximately ninety 40 minute periods of classwork and parallel homework or preparation. The units can be taken in various sequences and there are opportunities for flexibility within each unit.

For the student

A. **Laboratory guides**

Maintenance of the organism 80p
including interaction and exchange between organisms and their environment; Gas exchange systems; Transport between organisms; Transport media; Digestion and absorption; Enzymes and organisms; Photosynthesis; Metabolism and the environment.

The developing organism 65p
including Sexual reproduction; Early development; Cell development and differentiation; The nature of genetic material; Gene action; Development and the internal environment; Development and the external environment.

Organisms and populations 80p
including Variation in a community; Inheritance and the origin of variation; The cell nucleus and inheritance; Population genetics and selection; Population dynamics; Organisms and their physical environment; Organisms and their biotic environment; The community as an ecosystem; Evolution and the origin of species.

Control and co-ordination in organisms 80p
including The Organism and water; The cell and water; Control by the organism; Stimuli and their influence; Nerves and movement; Structure and function in the nervous system; Social behaviour.

B. **Study guide**

Evidence and deduction in biological science £1.50
Complementary to the four laboratory guides but devoted to non-practical work involving problems based on a variety of second-hand data.

Key to pond organisms 30p

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Complementary to the four laboratory guides but devoted to non-practical work involving problems based on a variety of second-hand data.

Key to pond organisms 30p

C. **Topic Reviews**

The artifical kidney	15p
Circulation	25p
Control of breathing	20p
The heart-lung machine	20p
Interactions	15p
Metabolism	25p
Photosynthesis	20p
Biological barriers	35p
Human pregnancy and birth	35p
Thinking quantitatively I	22½p
Thinking quantitatively II	35p
From egg to adult	30p

For the teacher

D. **Teachers' Guides**

Teachers' Guide I £1.25
Related to the first two laboratory guides

Teachers' Guide II £2.75
Related to the last two laboratory guides

Teachers' Guide to the Study Guide £3.50
Related to the students' study guide

Projects in Biological Science 35p
A description of individual project work suitable for students

Laboratory Book £2.50
Information about laboratory facilities, equipment, organisms and chemicals required by the topics covered in the course, and about techniques used in the investigations.

E. **Film loops**

Published by Penguin Books Ltd. in Standard 8 with full teaching notes.

Frog sciatic nerve	£6
Locust ventral nerve cord	£5.50
Handling radioisotopes I: Carbon 14	£5.50
Handling radioisotopes II: Phosphorus 32	£5.50
The use of the microscope	£6.00
Operant conditioning	£6.30

Published by Rank Audio Visual Ltd. in Standard and Super 8.

Thyroid activity

Sitophilus granarius: a pest of stored food

Mosquito trapping

Potato Blight: *Phytophthora infestans*

Published by Macmillan and Co. Ltd. in Standard 8 only.

Development of normal mice

Development of pituitary dwarf mice

Management of normal mice

Technique of taking vaginal smears in mice

Published by Gateway Educational Films Ltd.

Zebra finch (Control and co-ordination in organisms). Standard 8 only.

The Tern: nesting and parental behaviour (Control and co-ordination in organisms). Standard and Super 8.

F.16m Film published by Rank Audio Visual Ltd.

Mosquitoes and the tourist

EXAMINATIONS

A-level examinations devised for the Nuffield A-level Biological Science Course are set by the Joint Matriculation Board on behalf of all the GCE Boards. Further details from the Secretary, Joint Matriculation Board, Manchester M15 6EU.

TRAINING AND DIFFUSION

Details of in-service courses are available from LEAs, Colleges and University Departments of Education and the Department of Education and Science. Information is also to be found, from time to time, in the journals of the Association for Science Education and the Institute of Biology. A list of all schools which were involved in the testing of the project's materials is given in the teachers' guides.

RELEVANT PAPERS AND PUBLICATIONS

P.J. Kelly and W.H. Dowdeswell 'The Nuffield A-level Biological Science Project' *Journal of Biological Education,* 1970, 4,4

P.J. Kelly and R.E. Lister 'Assessing Practical Ability in Nuffield A-level Biology' in *Studies in Assessment,* Eds. Eggleston and Kerr (EUP 1969)

J.F. Eggleston and P.J. Kelly 'The Assessment of Attainment in Project Work for A-level Biology' *Educ. Res.,* 1970, 12, 3

P.J. Kelly 'Implications of Nuffield A-level Biological Science' *School Science Review,* 1970, 52, 179.

FURTHER INFORMATION

Further information is available from Dr P.J. Kelly at the Centre for Science Education.

Copies of all published material are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

P/T

NUFFIELD A–LEVEL CHEMISTRY (SC 16 02)

DIRECTOR: **Professor E.H. Coulson**

LOCATION: Centre for Science Education, Chelsea College of Science and Technology, Bridges Place, London SW6. **Telephone:** 01-736 3401

DURATION: 1965–1969 **AGE RANGE:** 16–18 **GRANT:** Nuffield only

The Advanced Chemistry Project is one of the Nuffield Advanced Science Teaching Projects; the others are Biological Science, Physical Science, and Physics. In common with all Nuffield Science projects, the work rests on the belief that courses should not only be based on the principles of the subject which are regarded as of fundamental importance at the present time, but must also consciously seek to develop imaginative thinking on the part of the student.

The objectives underlying the course are based upon those of the Nuffield O-level Chemistry project, although this in no way prevents students following the course who have not done the O-level course. Treatment of the subject at advanced level is based firmly on the establishment and use of three aids to understanding currently seen as being fundamental to the study of chemical systems. These are:

1. the use of the Periodic Table as a means of providing a unifying pattern for the diverse properties of elements and compounds
2. the relationship between structure (both atomic and molecular) and the properties of substances
3. the way in which energy transfers can determine the feasibility and outcome of reactions.

These are applied to the investigations of both organic and inorganic systems, but in a manner that does not involve the neglect of preparative work.

The materials represent a coherent chemistry course, and not a collection of related topics. The course is in two sections: a basic course of 19 topics which it is envisaged will take 51 weeks, assuming the availability of six to eight 40 minute periods a week, and one of five special studies which should occupy a further four to six weeks. The course is firmly based on experimental work, much of which is carried out by students, and relies heavily upon class discussion. To cope with the considerable amount of preparation for practical work technical assistance is highly desirable, and there is also a fair amount of constructional work when the course is undertaken for the first time. All materials have been tested in 21 trial schools.

MATERIALS

Publisher: Penguin Books Ltd., Harmondsworth, Middx. from whom further information and materials are available. Publication from 1970. Prices given below are correct at time of going to press.

For the student

Students' book I £1.25

Topics 1 to 12: Amount of substance; Periodicity; The masses of molecules and atoms; Atomic structure; The halogens and oxidation numbers; The s-block elements and the acid-base concept; Energy changes and bonding; Structure and bonding; Carbon chemistry, part 1; Intermolecular forces; Solvation; Equilibria: gaseous and ionic.

Students' book II £1.00

Topics 13 to 19: Carbon chemistry, part 2; Reaction rates; Equilibria: redox and acid-base systems; Some d-block elements; Equilibrium and free energy; Carbon compounds with large molecules; Some p-block elements.

The chemist in action 95p
A student's text on technological applications of chemistry

Special studies

Biochemistry	90p
Ion exchange	65p
Chemical engineering	£1.35 (June 1971)
Food Science	90p
Matallurgy	£1.22½ (August 1971)

Experiment sheets
6 boxes, at £4 each, or £22.50 the complete set.

Books of data
For use with all Nuffield Advanced Chemistry, Physics and Physical Science Courses.

Programmed texts

Amount of substance	(in preparation)
Names and formulae of carbon compounds	85p
Oxidation numbers	(in preparation)

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1. the use of the Periodic Table as a means of providing a unifying pattern for the diverse properties of elements and compounds
2. the relationship between structure (both atomic and molecular) and the properties of substances
3. the way in which energy transfers can determine the feasibility and outcome of reactions.

These are applied to the investigations of both organic and inorganic systems, but in a manner that does not involve the neglect of preparative work.

The materials represent a coherent chemistry course, and not a collection of related topics. The course is in two sections: a basic course of 19 topics which it is envisaged will take 51 weeks, assuming the availability of six to eight 40 minute periods a week, and one of five special studies which should occupy a further four to six weeks. The course is firmly based on experimental work, much of which is carried out by students, and relies heavily upon class discussion. To cope with the considerable amount of preparation for practical work technical assistance is highly desirable, and there is also a fair amount of constructional work when the course is undertaken for the first time. All materials have been tested in 21 trial schools.

MATERIALS

Publisher: Penguin Books Ltd., Harmondsworth, Middx. from whom further information and materials are available. Publication from 1970. Prices given below are correct at time of going to press.

For the student

Students' book I £1.25

Topics 1 to 12: Amount of substance; Periodicity; The masses of molecules and atoms; Atomic structure; The halogens and oxidation numbers; The s-block elements and the acid-base concept; Energy changes and bonding; Structure and bonding; Carbon chemistry, part 1; Intermolecular forces; Solvation; Equilibria: gaseous and ionic.

Students' book II £1.00

Topics 13 to 19: Carbon chemistry, part 2; Reaction rates; Equilibria: redox and acid-base systems; Some d-block elements; Equilibrium and free energy; Carbon compounds with large molecules; Some p-block elements.

The chemist in action 95p
A student's text on technological applications of chemistry

Special studies

Biochemistry	90p
Ion exchange	65p
Chemical engineering	£1.35 (June 1971)
Food Science	90p
Matallurgy	£1.22½ (August 1971)

Experiment sheets
6 boxes, at £4 each, or £22.50 the complete set.

Books of data
For use with all Nuffield Advanced Chemistry, Physics and Physical Science Courses.

Programmed texts

Amount of substance	(in preparation)
Names and formulae of carbon compounds	85p
Oxidation numbers	(in preparation)
Ethanol and other alcohols	60p

For the teacher

Teachers' guide I (Topics 1–12)	£1.50
Teachers' guide II (Topics 13–19)	£1.50
Teachers' guide to the special studies	£2.10
Examinations and assessment	£3.00

Film loops

The hydrolysis of bromoalkanes
Rate of reaction
The Born-Haber cycle
The manufacture of plastic articles
Problems in the use of detergents
Applications of paper chromatography
Two-way paper chromatography
Applications of the mass spectrometer
Organic analysis by the mass spectrometer
Testing of plastic film
Addition to carbon-carbon double bonds

Overhead projection originals £5.50

A list of apparatus and materials required in the course is available from the Association for Science Education, College Lane, Hatfield, Herts. price 25p.

EXAMINATIONS

Advanced and S-level examinations are administered by the University of London School Examinations Department 66–72 Gower Street, London WC1, on behalf of all examination boards. Teachers should contact the Department before starting the course, as assessment of practical work is carried out throughout the course. The Schools Council has recently set up a research project under Mr J.C. Mathews at Lancaster entitled 'Investigation into the operation of the Nuffield A-level Chemistry Examination' (EX 16 08).

RELEVANT PAPERS AND PUBLICATIONS

Education in chemistry November 1969, Vol vi No 6, 199–216.

FURTHER INFORMATION

Copies of all published material are avaialble for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

Further information is available from Professor E.H. Coulson at the Centre for Science Education.

T/P

NUFFIELD A–LEVEL PHYSICAL SCIENCE (SC 16 03)

ORGANISER: Dr J.E. Spice

LOCATION: Centre for Science Education, Chelsea College of Science and Technology, Bridges Place, London SW6

DURATION: 1965–1972 **AGE RANGE:** 16–18 **GRANT:** Nuffield only.

The Physical Science materials are part of the Nuffield Advanced Science project, the other components being chemistry, physics, and biological science. The course was developed as an integrated approach to physical science in the sixth form and is intended to be a study in its own right as well as being suitable for those wishing to proceed to further study in any of the pure sciences, in technology, and in medicine, pharmacy, etc.

The course has been very flexibly structured to enable schools to adapt the timing, order and emphasis to their own needs. Experience gained in trial schools has indicated that eight 40 minute periods a week are advisable, and that initially at any rate, both a physics and a chemistry teacher should be involved.

CHARACTERISTICS OF THE COURSE

The course has been exhaustively tested, in about eight schools, with four generations of A-level students. The published materials will therefore, in effect, be the fourth version of the course.

The main components of the course, with the approximate percentages of course time recommended, are as follows:

The basic course	75%
General and materials option	15%
Project	10%

The sections of the basic course are:

1 Forces, motion and energy
2 The elements of the second short period
3 Kinetic theory and phase equilibria
4 Some important chemical reactions
5 Electricity and atomic structure
6 Chemical equilibrium
7 Intermolecular and interionic forces, structures and properties
8 An introduction to chemical kinetics
9 Covalent bonds and the compounds of carbon
10 Group relationships in the Periodic Table
11 Elements of the d-block
12 Simple harmonic motion and wave motion
13 Electromagnetic induction and electrical oscillations
14 Electromagnet radiation

The general options, of which each candidate is advised to choose two, are:

G1 An introduction to thermodynamics
G2 Rate processes
G3 Rotational motion
G4 The conduction of electricity
G5 Methods of purification and criteria of purity
G6 Molecular spectra and photochemistry
G7 Further organic chemistry

The materials options, of which each candidate should choose one, are:

M1 Metals
M2 Polymers
M3 Ceramics and glasses

The arrangement of the papers is such that those candidates for whom this suggested coverage is not possible, should nevertheless be able to attain reasonable A-level grades. On the other hand, other candidates may be able to attempt more than two of the general options, so that their choice of questions on paper III can be correspondingly wider.

Both the general and the materials options comprise topics which arise naturally from various parts of the basic course. It should be emphasized that the level of treatment required is not higher than that for the basic course.

For the project, each candidate chooses a practical topic, in conjunction with his or her teacher. This can involve either the design and construction of a piece of equipment, or a small investigation. A

as being suitable for those wishing to proceed to further study in any of the pure sciences, in technology, and in medicine, pharmacy, etc.

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Both the general and the materials options comprise topics which arise naturally from various parts of the basic course. It should be emphasized that the level of treatment required is not higher than that for the basic course.

For the project, each candidate chooses a practical topic, in conjunction with his or her teacher. This can involve either the design and construction of a piece of equipment, or a small investigation. A

short report has to be submitted to the examiners. The project mark (which is determined largely by the teacher) accounts for about 14% of the total A-level mark.

MATERIALS

Publisher: Penguin Education, Harmondsworth, Middx. from whom further details and materials are available. Publication from late 1972.

For the student

Students' workbook I	(sections 1–7
Students' workbook II	(sections 8–14)
Students' workbook III	(Options)
Sourcebook	
Nuffield Advanced Science Book of data	
Overhead projection originals	

For the teacher

Teachers' guide I	(sections 1–7)
Teachers' guide II	(sections 8–14)
Teachers' guide III	(Options)
Introduction and guide	

EXAMINATIONS

An A-level examination in Physical Science is offered by the Cambridge Local Examination Syndicate on behalf of all GCE Boards. Of university departments which require A-level passes in physics and/or chemistry as conditions of entry, all except the chemistry department at Exeter accept an A-level pass in physical science as the equivalent.

DIFFUSION AND TRAINING

A number of courses are planned for 1972. Further details of these from Professor K.W Keohane at the Centre for Science Education.

RELEVANT PAPERS AND PUBLICATIONS

Documents covering all aspects of the course are obtainable from Professor W.E. Keohane at the Centre for Science Education.

FURTHER INFORMATION

A complete set of the printed materials will be available (when published) for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

Further information is available from Professor K.W. Keohane at the Centre for Science Education.

P/T

NUFFIELD A–LEVEL PHYSICS (SC 16 04)

DIRECTORS: Dr P.J. Black and J.M. Ogborn

LOCATION: Centre for Science Education, Chelsea College of Science and Technology, 90 Lillie Road, London SW6 **Telephone:** 01-385 5506

DURATION: 1966–1971 **AGE RANGE:** 16–18 **GRANT:** Nuffield Foundation, £10,000 from Schools Council for evaluation.

The physics materials are part of the Nuffield Advanced Science project, the other components being Chemistry, Biological Science and Physical Science. The course attempts to emphasise the mutual relevance and interaction of different types of thinking in physics, the importance of thoughtful experimenting by pupils working in groups and individually, and the relevance of the ideas and results of physics to society and everyday life. The project team have constructed a course by weaving together key ideas and methods to make a connected whole which makes sense and arouses interest in its own right, which has discernible themes and connects these in fruitful ways, and at the same time serves the deeper aims of equipping students to learn in the future, of understanding physics, of understanding how physics works, of learning to inquire for oneself, of seeing applied and social implications, and of arousing interest and enjoyment in those who study it.

The course has been structured sequentially, each section bringing together earlier material. It is planned on the basis of five terms each of 10 weeks, with approximately seven 40 minute periods a week, at least four of which should be in a laboratory. A subsidiary mathematics course is provided for students who are not taking Advanced Level Mathematics, which would require not less than two periods a week for the first year. Although the Advanced Physics course is consistent with the aims and content of the Nuffield O-level course, it is possible for students to enter the A-level course from a more traditional O-level course, though there may be a need for some extra work or practical experience.

All materials have been tested in some 87 schools and revised in the light of their experience. The Schools Council provided funds to assist in on-going evaluation, undertaken by Mr P.R. Lawton and other members of the project team. Groups of schools are established in Tyneside, the North West, Yorkshire, Midlands, W. Midlands, London, S. East and N. Ireland.

MATERIALS

Publisher: Penguin Books Ltd., Harmondsworth, Middx. from whom further information and materials are available. Prices given below are correct at time of going to press. Publication from 1972.

For the student

Students' Book Unit 1: Materials and structure 45p
The variety of behaviour of materials; X-Rays and structure; stretching and breaking.

Students' Book Unit 2: Electricity, electrons and energy levels 45p
Things which conduct; currents in circuits; electric charge; stored energy; electronics and energy levels.

Students' Book Unit 3: Field and potential 45p
The uniform electric field; gravitation field and potential; the electrical inverse square law; ionic crystals.

Students' Book Unit 4: Waves and oscillations 45p
Waves of many sorts; mechanical waves; mechanical oscillations.

Students' Book Unit 5: Atomic structure 50p
Radioactivity and the nature of atoms; the Rutherford model of the atom; exponential decay; new ideas and problems about atoms.

Students' Book Unit 6: Electronics and reactive circuits
Electronic building bricks; circuits containing capacitance; circuits containing inductance; building electronic systems.

Students' Book Unit 7: Magnetic fields
Forces on currents; electromagnetic induction; flux near currents.

Students' Book Unit 8: Electromagnetic waves
Looking through holes; spectra; electrical waves; relativity.

Students laboratory book

Physics and the engineer

For Students and Teachers

Unit 9: Change and chance
On way processes; fuel resources of the Earth; diffusion and chance, thermal equilibrium, temperature and chance; counting ways; uses of thermodynamic ideas.

Unit 10: Waves, particles and atoms
Photons; electrons; waves in boxes; the scope of wave mechanics.

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Students' Book Unit 3: Field and potential 45p
The uniform electric field; gravitation field and potential; the electrical inverse square law; ionic crystals.

Students' Book Unit 4: Waves and oscillations 45p
Waves of many sorts; mechanical waves; mechanical oscillations.

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Radioactivity and the nature of atoms; the Rutherford model of the atom; exponential decay; new ideas and problems about atoms.

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Students' Book Unit 7: Magnetic fields
Forces on currents; electromagnetic induction; flux near currents.

Students' Book Unit 8: Electromagnetic waves
Looking through holes; spectra; electrical waves; relativity.

Students laboratory book

Physics and the engineer

For Students and Teachers

Unit 9: Change and chance
On way processes; fuel resources of the Earth; diffusion and chance, thermal equilibrium, temperature and chance; counting ways; uses of thermodynamic ideas.

Unit 10: Waves, particles and atoms
Photons; electrons; waves in boxes; the scope of wave mechanics.

For the Teacher

Teachers Handbook	£1.35

An overall view of the course, with details of books, apparatus and films.

Teachers' Guide Unit 1: Materials and structure	£1.00
Teachers' Guide Unit 2: Electricity, electrons and energy levels	£1.05
Teachers' Guide Unit 3: Field and potential	£1.00
Teachers' Guide Unit 4: Waves and oscillations	£1.20
Teachers' Guide Unit 5: Atomic structure	£1.10
Teachers' Guide Unit 6: Electronics and reactive circuits	
Teachers' Guide Unit 7: Magnetic fields	
Teachers' Guide Unit 8: Electromagnetic waves	
Apparatus construction drawings	
Teachers' Guide: Supplementary mathematics	

Film loops – 8mm. Available in Standard 8, each with full teaching notes.
X-Ray Diffraction:

1.	*Production of the X-Ray Beam*	£6.30
2.	*Diffraction of Monochromatic X-Rays by a Single Crystal*	£6.30
3.	*Diffraction of Monochromatic X-Rays by a Powder Sample*	£6.30
4.	*Determination of the Wavelength of X-Rays Using a Diffraction Grating*	£6.30
	Solving a Standing Wave Equation for a Hydrogen Atom	£4.25
	Wind-Induced Oscillations	£6.30
	Forwards or Backwards? 1	£5.50
	Forwards or Backwards? 2	£5.50
	Forwards or Backwards? 3	£5.50

Slides

Unit 1: Materials and structure	£1.50
Unit 4: Waves and oscillations	£1.50
Unit 9: Change and chance	£1.50

Films 16mm
Change and Chance: a model of thermal equilibrium in a solid. A silent computer constructed film £22.50

A number of 16mm films have been made in conjunction with Rank-Mullard.

EXAMINATIONS

An A-level examination is being offered by the Oxford and Cambridge Board on behalf of all GCE Boards. Any inquiries should be addressed to the Secretary, Oxford and Cambridge Schools Examination Board, 10 Trumpington Street, Cambridge CB2 1QB. Copies of previous papers are available from the Board. The examination consists of five papers and an investigation which is assessed by the teacher with external moderation.

TRAINING AND DIFFUSION

The project has organised a number of courses for teachers since publication. Further courses are planned by Institutes and Departments of Education and by LEAs. Details are advertised in the educational press.

RELEVANT PAPERS

P.J. Black and J.M. Ogborn 'The Nuffield Advanced Physics Course' *Bulletin of the Institute of Physics* Vol 21, 1970
P.J. Black and J.M. Ogborn 'The Nuffield Physicist in the University' *Physics Education,* Vol 7 1972.

FURTHER INFORMATION

All published materials are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

Further information is available from the Centre for Science Education.

R

REDUCED SCIENCE COURSES SUITABLE AS A PREPARATION FOR NORMAL UNIVERSITY HONOURS COURSES IN SCIENCE (SC 16 05)

DIRECTOR: Professor L.R.B. Elton **RESEARCH FELLOW:** J.M. Kilty

LOCATION: Institute for Educational Technology, University of Surrey, Guildford, Surrey.
Telephone: Guildford (0483) 71281

DURATION: 1969–1972 **AGE RANGE:** 16–18 **GRANT:** £12,600

AREA OF INQUIRY

This research project was established to study the reduced science courses offered at the University of Surrey, with special reference to the relevance of such courses to the problem of the swing away from science in the sixth form, and to curriculum development.

The University of Surrey offers four year courses in Physics, Physical Science, Electrical Engineering, Metallurgy and Biochemistry to students from the Arts Sixth, the first year of which is specially designed to meet the needs of this intake. In addition it offers a three year course in Human and Physical Sciences, in which students study pure and applied physical science, philosophy, psychology and sociology, and which has a first year designed to bring students from different subject backgrounds to a common point.

This project, which is concentrated on the four year courses, has involved:

1. a factual study of the type of student who is attracted to the course
2. a study of the minimal needs of school work in preparation for the course
3. a study of methods for bringing students of diverse scholastic backgrounds and attainments to a common basic standard in science, which will enable them to take a normal university science course
4. an investigation as to how far the courses rely on features perculiar to the University of Surrey and how far they would have to be modified to be generally suitable for universities and colleges
5. arising from 2 and 3, assistance in the development of the first year of the courses, both in course design and course materials.

PROCEDURE

A number of tests have been administered in relation to the first two objectives above, to complement information gained from close personal contact with the students.

In respect of (3) a selection of books and audio-visual aids has been made available to the student, and a survey of how these are used has been undertaken.

Experimental materials have been developed, including self-service and group laboratory experiments, and objective tests have been designed to measure growth in understanding of the various concepts and principles of the courses; these tests have been used in sixth forms for comparative evaluation. For this purpose an item bank has been developed, to which local teachers have contributed.

An objective test has also been designed to test the suitability of the existing course as the first year of a wider range of courses (see (4) above).

A survey of other science and engineering degree courses into which similar students may be accepted has been undertaken, as well as a survey of the extent to which they are known to careers teachers.

FINAL REPORT

A report is in preparation and will be submitted to the Council in due course with a view to publication.

RELEVANT PUBLICATIONS

J.M. Kilty 'The Design of Self-Teaching Situations involving 8mm loop cassette film', *Visual Education*, February 1971.

FURTHER INFORMATION is available from Professor Elton or Mr Kilty at the project.

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JUNE 1972

T/P

ENGINEERING SCIENCE (SC 16 06)

DIRECTOR: **Professor L.M. Cantor**, Schofield Professor of Education and Head of the Department of Education, Loughborough University of Technology.

LEADER: **Mr D.T. Kelly**

LOCATION: Engineering Science Development Unit, University of Technology, Loughborough, Leics LE11 3TU **Telephone:** Loughborough (050-93) 63171.

DURATION: 1970–1973 **AGE RANGE:** 16–18 **GRANT:** £16,650 (+ £25,000 from Loughborough University)

AREA OF INQUIRY

During recent years the Joint Matriculation Board, in response to requests from schools, has developed a syllabus for Engineering Science at A-level providing an alternative to Physics as a University entry qualification. The Board furnished schools with guidance material, including a set of trial texts and evolved a system of internal assessment and external moderation of practical work consisting of experimental investigations and a project. The examination, which was first held in 1969, comprises an objective test, a comprehension and communication exercise, a project design problem and questions involving decision-making choices on engineering devices and scientific analysis.

In order to extend the guidance to schools, Loughborough University of Technology and the Schools Council have established the Engineering Science Development Unit, to produce and test guidance material and pupils' texts.

AIMS

The aim of the project is not primarily the training of engineers and scientists but rather that the material produced should help prepare students adequately for employment or higher education in a wide range of subjects and careers. All students using the material should leave school with an understanding of scientific method, an ability to approach practical problem solving rationally, and an appreciation of the breadth and significance of the major activities which constitute modern engineering. If these aims are achieved the students would also be well prepared to future work in science and engineering.

MATERIALS

Publisher: Not yet selected. Publication will probably be during 1974.

The scientific content of the materials will be based upon the content of the current engineering science syllabuses. The main part of the materials will be the *students' text*, and this will be divided into eleven sections, each one dealing with a major area of scientific concepts, and each area to be introduced through a consideration of one or more important engineering situation. The sections include:

Electricity
Dynamics
Structures
Tribology
Field Theory
Electronics and Systems
Flow Phenomena
Vibrations and Waves
Thermodynamics
Use of Materials

In addition it is hoped to produce a *teachers' guide* and a *students' guide*, including reference sources for information, guidance and equipment, and a *Problems Book*. Teachers are invited to submit problems to the project; all problems used at trial stage or in the published edition will be paid for.

The material will not create a course in itself, as Nuffield Science materials do, but will provide support for a number of existing courses, primarily those in Engineering Science examined by the Joint Matriculation Board and Associated Examining Board but with some relevance for existing and developing courses in A-level Physics and Engineering. It is hoped to use all material in fifteen trial schools and colleges prior to publication.

EXAMINATIONS

The JMB examination is accepted by all university engineering and physics departments and the majority of other departments in science and medicine as an alternative to A-level Physics. Examinations in the other engineering courses referred to are not accepted as such a wide basis.

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TRAINING AND DIFFUSION

In addition to the production of teaching materials the unit is making an effort to foster in-service training. In-service courses are being organised in co-operation with the University's Centre for Extension Studies. Contacts with University Departments of Education are being established with a view to discussing pre-service training; the Loughborough University of Technology Education Department is organising a degree course in Education and Engineering which should help increase the flow of teachers trained specifically to cope with courses such as Engineering Science.

RELEVANT PAPERS AND PUBLICATION

D.T. Kelly 'Engineering Science Development Unit' Project Technology *Bulletin* 15, October 1970

D.T. Kelly 'The Course of Engineering Science ' *School Technology* 19, September 1971

Topics in Engineering Science for Teachers. An occasional bulletin produced by the Unit and available on application. Three issues to date.

J.M.B. Examination Papers in Engineering Science. Available from the Joint Matriculation Board, Manchester 15. The 1970papersare reprinted in Project Technology *Bulletin* 15.

FURTHER INFORMATION is available from Mr D.T. Kelly at the Engineering Science Development Unit or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

T/R

PRE–SCHOOL EDUCATION PROJECT (IN 02 01)

DIRECTOR: Miss E.M. Parry *

LOCATION: Rachel McMillan College of Education, 28 Albury Street, Deptford, London SE8

DURATION: 1969–1971 **AGE RANGE:** 2–5 **GRANT:** £25,800

AREA OF INQUIRY

This inquiry was commissioned in 1969 to:

1. produce an account which will be of value to nursery school teachers and to others engaged in the care of pre-school children of what are considered to be the best and most useful practices in nursery and other pre-school education today
2. consider how far current practice is meeting the needs of the children, bearing in mind experiments in the United States and elsewhere in the intellectual stimulation of deprived pre-school children and Plowden's dictum that 'the development of language is central to the educational process'
3. consider whether there is a need for the Council to initiate further research and experiment in order to indicate teaching procedures and, if necessary, produce supporting materials which might better foster the growth – particularly the growth of language – of pre-school children
4. consider the implications for the training of teachers of any suggestions put forward.

The inquiry was also to cover organised out of school activities such as pre-school playgroups.

PROCEDURE

The project concentrated its inquiry on approximately 100 nursery schools in five areas – London, Midlands, North-East, North-West, South-West and Wales. Teachers in the schools were asked to complete 15 different questionnaires over a period of twelve months covering such areas as the numbers of children and of staff, links between home and school, the type of equipment, a record of all musical equipment used during a five day period, all stories and poetry used during a five day period, the number and kind of books in the nursery etc. In addition each school produced at least one, and sometimes more, detailed record over a period of one or two terms of an area of teaching that particularly interested the teacher concerned.

In addition to its survey of nursery schools, the project studied play-groups in Leeds, Bristol and Birmingham; the director followed up work done in America for Plowden with a further visit to look at experimental schemes; and a few colleges of education co-operated by making teaching practice notebooks available and by staff comments on observation of teaching practice.

PUBLICATIONS

Publisher: To be selected. Publication from 1973.

Based upon these studies and insight into what schools have found most valuable, a research report and four teacher's guides have been prepared. Provisional titles are as follows:

Basic Learning, which includes experimentation with the basic materials of water, soil, sand and clay; developing self-awareness; sensory and language experiences; examples of first-hand experiences; and suggested displays for young children.

Challenge of the Environment, an attempt to show the value of the environment in the education of a young child. This guide contains many examples of ways in which this can be achieved.

Play and Language, a description of the importance of play in the life of a young child and ways in which play can be used to stimulate linguistic and cognitive growth, knowing, imagining and reasoning.

Listening and Looking. An account of some aspects of aesthetic development, including sections on stories, poetry, books, music, dramatic play, and creative activities.

Research Report. A report of the project's research, including sections on practice in nursery schools and classes, the classes containing 'under-fives' in primary schools, day nurseries, playgroups, and the training of staff.

Films. A 16mm film *Out and About* and a number of 8mm films have been made by teachers working with the project. These will be available in due course; details from the Schools Council Project Information Centre.

RELEVANT PAPERS

'A bold adventure' *Dialogue* 3, June 1969
'The under-fives' *Dialogue* 8, May 1971.

FURTHER INFORMATION

Copies of the publications and films when published will be available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

To some extent arising from the work of this project, an 18 month feasibility study was established under Dr Joan Tough at Leeds, entitled Pre-School Language Project – see sheet EN 02 01.

*Miss Parry has subsequently retired.

R

AIMS OF PRIMARY AND NURSERY EDUCATION (IN 03 01)

DIRECTOR: Dr P.M.E. Ashton* **NURSERY PROJECT DIRECTOR:** Mrs Gail Exon

LOCATION: School of Education, University of Birmingham, P.O. Box 363, Birmingham 15
Telephone: 021-472 1301

DURATION: 1968–1972 **AGE RANGE:** 3–11 **FINANCE:** £31,280

AREA OF INQUIRY

The study had two aims. First, to discover what practising primary school teachers think are the aims of primary education and to examine the areas of consensus and of variation which may exist. Second, to work out techniques for thinking about aims which teachers could readily employ for themselves.

Both projects were set up and run in association with the West Midlands Primary Schools Research and Development Group.

PRIMARY EDUCATION PROJECT

The requirement, as the team saw it, was to formulate aims as teachers see them and not as they would fit some pre-determined theoretical framework. Thus the first invitation to teachers to state their aims was completely open-ended and each phase of the work involved interaction between teachers and the team. Beginning with the first open-ended contact with teachers and ending with the national distribution of a questionnaire on the aims of primary education, eliciting statements of aims from teachers and sampling opinions about them occurred through five successive stages:

Stage 1: Questionnaire. Some 54 volunteer teachers in the West Midlands completed open-ended questionnaires on the aims of primary education. From these questionnaires four major areas emerged.

Stage 2: The volunteer teachers from the West Midlands formed seven discussion groups for the purpose of considering and defining aims.

Stage 3: Thirty-one new teacher groups were established, while the original seven opted to continue. By this stage the discussions were focused on specific topics.

The result was an output of statements from each group meeting which were clear and meaningful aims for primary education and which provided a basis for a map or framework within which related aims could be grouped.

Stage 4: A framework or grid was developed, based on the reports received from the groups. After this point in time group discussions were related to this grid and statements were assigned their appropriate place within the framework.

The discussions continued until each group declared its work completed and that it was satisfied that it had produced a comprehensive set of aims for primary education.

Stage 5: All the statements of aims received from all of the groups were refined into one single set which formed the basis of the questionnaire for the major survey of teachers' opinions of aims.

The questionnaire was distributed to a representative sample of one in seventy-five primary schools throughout England and Wales. Approximately 1,500 teachers in 201 schools completed the questionnaire.

Other Exploratory Studies

Within the context of the project a number of small-scale studies were conducted, including the following:

an initial exploration of the opinions of a small group of parents about the aims of primary education;

the aims formulated by a group of tutors from three colleges of education;

a study of the aims of a hundred head teachers and the major approaches which they advocate;

an exploratory study of aims, influences and attitudes in primary education, based upon the responses of teachers and heads in twelve primary schools to a number of questions about factors which they would identify as aims, influences and constraints. An account of this study, entitled *Purpose, Power and Constraint in the Primary School Curriculum* will be published in 1973.

NURSERY EDUCATION PROJECT

The same research techniques which had proved successful in the aims of primary education project were employed. They were the use of an open-ended questionnaire to collect as wide a range of views as possible from a selected sample of qualified nursery teachers; informal tape recorded discussions with groups of nursery teachers on the aims and objectives of nursery education; structured discussions with three separate groups of nursery teachers meeting on many occasions to talk about

and clarify the objectives or the means of achieving the aims of nursery education; and an analysis of the data thus collected in such a way as to lead to development of the main instruments of the research structured questionnaire.

The questionnaire was sent to a 40% national sample of nursery schools and a 20% national sample of nursery classes. The final return of the questionnaires, 578 in all, represented an overall return from 74% of the sample schools and classes. Though not perfect, this level of sampling is good and sufficient scope to allow adjustments to be made from the sample on a national basis.

FINAL PUBLICATIONS

Five publications have been prepared by this project.

1. *A Study of Nursery Education* published as Schools Council Working Paper 41, the report of the nursery section of this project (see above). This report discusses the structure of the research, the questionnaires, the sample and the findings, including details of the teachers, the purposes, objectives and aims of nursery education, the role of the nursery teacher, the nursery education course, the need for nursery education and a summary of the main findings.
2. *Purpose, Power and Constraint in the Primary School Curriculum.* This study of the constraints and influence which effectively shape the operational curriculum will be published in Schools Council Research Studies series by Macmillan Education in 1973.
3. *A Study of the Aims of Primary Education.* In this publication the project team describe the preliminary work of the project up to the construction of the major questionnaire and describe, in detail, the findings. To be published in 1973.
4. *Aims and Curriculum Guide Book for Teachers.* This publication aims to help teachers crystallise feelings into clearly formulated aims and objectives. Listed are the 72 aims for primary education which were formulated by some 40 discussion groups, which could well be used as a starting point for the thinking of any individual teacher. To be published in 1973.
5. *Exploratory Studies.* In addition to the large-scale survey of teachers' views about the aims of primary education, the project conducted a number of small studies, which will be described in this report. These studies will include a survey of the aims of a hundred head teachers; the opinions of a group of parents; an analysis of eleven tape recordings of teacher's discussions and a formulation of the objectives of teaching practice. To be published in 1973.

RELEVANT PAPERS

'A Dialogue in Aims' *Dialogue* 7 February, 1971
Schools Council *A study in nursery education* (Working Paper 41), Evans/Methuen Educational, '72.

FURTHER INFORMATION

Copies of all reports, when published, will be available for reference in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

*Dr Ashton is now at Weymouth College of Education, Dorchester Road, Weymouth, Dorset.

T/P/R/X

COMPENSATORY EDUCATION RESEARCH AND DEVELOPMENT PROJECT

(IN 04 01)

CO-DIRECTORS: M. Chazan and Dr P. Williams*

LOCATION: Department of Education, University College, Old Education Building, Singleton Park, Swansea, Glam. SA2 8PP. **Telephone:** Swansea (0792) 25678.

DURATION: 1967–1972 **AGE RANGE:** 4–8 **GRANT:** £101,750

AREA OF INQUIRY

The main aims of the project were:

1. to develop screening techniques to enable children in need of compensatory education to be identified at an early age
2. to make longitudinal studies of infant school children in deprived areas, with particular reference to their emotional development and response to schooling
3. to develop materials which may be used to help culturally deprived children at the infant school stage.

PROCEDURE

The project has been organised on the basis of four inter-related but separate units:

Identification Techniques Unit
The main aim of this unit has been to develop a suitable screening procedure for identifying those entrants to infant schools who need compensatory education.

The *Swansea Evaluation Profiles,* as the screening procedures have been called, have been developed over a period of nearly five years and are the result of an intensive longitudinal study of nearly 700 children. At the beginning of the project's work the children were located in twelve infant schools, half of which were in the Midlands and half in South Wales. At the end of the study this same group was tested in over 70 infant schools in many different parts of the country.

The profiles are for use with children in their first term in the infant school and the project team hopes that they will help teachers in five ways:

(i) the profiles provide a valuable picture of a new entrant to school

(ii) the profiles define four groups of entrants who are likely to be showing learning problems at the end of the infant school period, unless special help is given

(iii) since not every child falls easily into a group, the profiles can also be used to give a 'risk score' for each entrant. This 'risk score' is a sign of the learning problems which he may be showing later

(iv) the profiles can be used diagnostically, since they show whether a child's background adjustment to school or development is particularly weak

(v) the profile scores can be used to predict future attainments in the basic subjects.

Emotional Development and Response to Schooling Unit
This unit has had the following main aims:

1. to examine the effects of material and cultural deprivation on the educational, social and emotional development of infant school children
2. to study the aims, methods and facilities of, and problems facing, a sample of schools serving children from 'deprived' backgrounds, and to compare these problems with those met within schools serving children with 'non-deprived' backgrounds.

It is hoped that this unit will be publishing, in 1973, two longitudinal studies of infant school children: one of these *Studies of Infant School Children II - Deprivation and Development,* has now been completed and examines the effects of a high degree of material and cultural deprivation on the linguistic, cognitive and emotional development of infants, and analyses the effects of poor initial adjustment to school on subsequent progress.

It is hoped by the project team that these studies will increase general understanding of what help is needed by children living in adverse conditions by indicating the factors which differentiate between those who show marked problems and those who are successful and well-adjusted even in a deprived environment.

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Welsh Language Unit

The aim of the Welsh Language Unit was to study the effects of material and cultural deprivation upon the linguistic development (in both Welsh and English), adjustment to the school situation and educational attainment of Welsh-speaking infant school children. A longitudinal study *Studies of Infant School Children III - Deprivation and the Bilingual Child* has now been completed.

Programme Development Unit

The main product of this unit will be a teachers' handbook *Language Development in the Infant School* and supplementary materials aimed at stimulating language development in the infant school. The handbook will consider the language problems of disadvantaged children and their practical implications for the infant school teacher.

PUBLICATIONS

Occasional Publication 1: Compensatory Education: an introduction, 1968. Articles by Maurice Chazan and Alice F. Laing and an annotated reading list. Out of print.

Occasional Publication 2: Children at Risk 1969. Contributions by Phillip Williams, Neil Ferguson, Brian Fisher and Norman Sims. Out of print.

M. Chazan and G. Downes (ed) *Occasional Publication 3: Compensatory Education and the New Media,* 1971. Contributions by Keith Evans, C.A. Waite, Arthur Evans and Galen Downes. 45p. post free*.

T. Cox and C.A. Waite (ed) *Teaching Disadvantaged Children in the Infant School,* 1970. 45p post free*. A series of articles based upon contributions to a conference for teachers and educationists entitled 'Compensatory Education and the Infant School' held at Swansea, Easter 1969.

Maurice Chazan, Alice Laing and Susan Jackson, *Just Before School,* Blackwell 1971. £1.60. The project's first research report, based on a selected group of pre-school children with particular reference to their preparation for school and their emotional development.

Phillip Williams, Peter Congdon, Margaret Holder and Norman Sims *Swansea Test of Phonic Skills.* Blackwell, 1971. Manual 40p. Test Sheet 5p. This is a method of assessing children's proficiency in dealing with the phonic skills which are the basis of good reading. Its main aim is to provide the teacher or psychologist with information about a child's relative strengths or weaknesses in the different areas of phonic knowledge.

*These are available from Singleton Bookshop, College House, University College of Swansea, Singleton Park, Swansea.

FUTURE PUBLICATIONS

Studies of Infant School Children I
Studies of Infant School Children II - Deprivation and Development
Studies of Infant School Children III - Deprivation and the Bilingual Child
Swansea Evaluation Profiles and accompanying *Research Report* on the screening device.
Language Development in the infant school: A Teacher's Handbook.

RELEVANT PAPERS

Maurice Chazan and Phillip Williams 'The Deprived and Disadvantaged', *Dialogue* 2, 1968.

Alice F. Laing 'The Construction of an Infant School Amenities Index', *British Journal of Educational Psychology,* February 1971. (The index is available from the project to research workers and educational administrators only).

Maurice Chazan, 'Cultural Deprivation and Reading Readiness' in *Reading Readiness,* University College of Swansea, Faculty of Education, 1970.

Phillip Williams, Pat Davies, Roy Evans, Neil Ferguson, 'Season of birth and cognitive development'. *Nature,* 12 December 1970.

Schools Council Research and Development Project in Compensatory Education *Bulletin No 3* 1972. Available free from Dr L. Ward at the project.

DIFFUSION AND TRAINING

The project team has held a number of courses for teachers, lecturers, advisers and others who are interested in compensatory education. In July 1972, a five-day course at the University College of Swansea will enable teachers and other educationalists to meet the project team and discuss their findings.

FURTHER INFORMATION

Copies of all items listed above are available for reference only in the Schools Council Project Information Centre. Further information is available from Dr L. Ward, Department of Education,University College of Swansea, Singleton Park, Swansea or from Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

* Dr Williams is now a Professor at the Open University.

R

GIFTED CHILDREN IN PRIMARY SCHOOLS (IN 05 01)

DIRECTOR: Dr E. Ogilvie *

LOCATION: c/o Schools Council, 160 Great Portland Street, London W1N 6LL.

DURATION: 1970–1971 **AGE RANGE:** 5–11 **GRANT:** £4,813.

AREA OF INQUIRY

This one year fact-finding enquiry arose from the work of the Working Party on Gifted Children which needed further information on the provision that was being made for gifted children during their primary years; this was to include those arrangements which, whilst not necessarily being specifically designated as for the gifted, might nonetheless be seen as being particularly helpful in the development of a variety of types of giftedness. 'Gifted' is here defined as describing any child who is outstanding in either a general or specific ability, such as the broad academic or aesthetic, or the more narrow linguistic, mathematical, athletic or musical.

PROCEDURE

This study operated in four main areas:

1. a survey was made of all LEAs to discover what help and support they provide for the teaching of gifted children, whether in school or out of it
2. some twenty schools regarded by LEAs and/or others as making good provision for gifted children were studied with reference to organisational arrangement, materials and equipment, curricula etc.
3. a small-scale study was made of teachers' views on the identification and selection of gifted children, and on the provision that is or ought to be made for them. The views of others were also sought as being complementary to those of the profession
4. study groups of teachers were established in some of those areas where an interest was expressed. These groups considered the educational needs of gifted children and their views are quoted extensively in Dr Ogilvie's survey.

FINAL PUBLICATION

The research report will be published by Macmillan Education in the Schools Council Research Studies series in 1973.

The following main conclusions are reported:

1. recognition of the real ability level and potential of many of our most able children is very inefficient and insufficient resources are being devoted to the problems involved
2. no achievement is a more common phenomenon than is generally realised and one major reason is the failure in schools to personalise the learning environments which they provide. Little more than lip service is paid to the concept of individualisation in many places
3. although attitudes towards segregation of gifted pupils are generally unfavourable, there is a very real concern amongst teachers that the most able children they teach may frequently not be receiving the kind of attention and opportunity to which they are entitled. Teachers, probably to a greater degree than administrators, are very aware of a number of 'brakes' in the system which serve only to inhibit and retard the progress of both outstanding and potentially outstanding pupils
4. there is little or no sign that new technologies, which might assist teachers to increase the measure of individualisation which characterises their activities, are making any impact on the schools. This is due as much to a failure to appreciate the possibilities as to any lack of financial help.

RELEVANT PAPERS AND PUBLICATIONS

W. Sheridan, 'The Gifted Child' *Dialogue* 5, February 1970.
'Miscellany' page 14, *Dialogue* 7, February 1971.

FURTHER INFORMATION

Items listed above and the report, when published, are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

*Dr Ogilvie is now Principal of Northampton College of Education, Lanercost, Cliftonville, Northampton NN1 5BX.

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R

USE OF PROJECT MATERIALS BY TEACHERS OF DISADVANTAGED PUPILS (IN 05 02)

DIRECTOR: R. Gulliford **RESEARCH OFFICER:** P. Widlake

LOCATION: School of Education, University of Birmingham, P.O. Box 363, Birmingham 15. **Telephone:** 021-472 1301.

DURATION: 1971–1972 **AGE RANGE:** 5–16 **GRANT:** £6,000.

AREA OF INQUIRY

Schools Council Working Paper 27 *Cross'd with Adversity*, prepared by the Working Party on Compensatory Education, recommended that 'as a matter of immediate urgency the Schools Council should establish a development project to ensure that pupils with language difficulties are not thereby prevented from taking advantage of the wider range of curriculum opportunities which development work is creating'. It was felt that the least successful fifteen to twenty per cent of the school population in special schools, remedial classes and departments, the lowest streams of secondary schools, or in mixed ability groups may not be benefiting from recent curriculum development work, and this one-year project was established:

1. to examine the problems experienced by a broad spectrum of pupils with learning difficulties - both the under achieving and slow-learners - when using existing materials produced by certain Council projects, with a view to isolating the particular difficulties caused by the materials as originally presented
2. to consider ways in which materials have been used - or adapted - by teachers and by project teams to make them acceptable to pupils at the lower end of the ability range with a view to examining the principles upon which successful uses and adaptations have been based
3. to publish a survey of good practice, including descriptions of particularly successful adaptations which would, among other things, attempt to consider the factors essential to the successful use of materials with pupils at the lower end of the ability range, and, in particular, with limited linguistic resources.

PROCEDURE

An initial questionnaire was sent to all Local Education Authorities in September 1971, asking for information about the use of Schools Council materials with disadvantaged pupils. Those projects most frequently mentioned in the returns were Breakthrough to Literacy (EN 05 01), Humanities Curriculum Project (HU 14 01) and Mathematics for the Majority (MA 13 01) and a special study is being made of these three projects. Others include English for Immigrant Children (EN 05 03), Nuffield Primary Mathematics (MA 05 01), Nuffield Science and the unpublished materials from English for West Indian Children (EN 07 01). The project has also been analysing the effectiveness of the trial materials from the Moral Education Project (HU 13 01) with the least successful 20% of the schools' population.

Contact has been established with teacher centres, tutors-in-charge of courses for teachers of disadvantaged children, and relevant teacher organisations. Several hundred schools have been approached through questionnaires and by visits to observe good practice in different areas of the curriculum.

FINAL REPORT

It is planned to produce a curriculum bulletin for teachers of 'disadvantaged' pupils. This should be available during 1973.

RELEVANT PUBLICATIONS

Schools Council *Cross'd with Adversity: the education of socially disadvantaged children in secondary schools* (Working Paper 27), Evans/Methuen Educational, 1970, 56p.

FURTHER INFORMATION from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

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T/P/R

EDUCATION FOR A MULTI–RACIAL SOCIETY (IN 05 03)

DIRECTOR: H.E.R. Townsend

LOCATION: National Foundation for Educational Research, The Mere, Upton Park, Slough, Bucks. **Telephone:** Slough (75) 28161

DURATION: 1972–1976 **AGE RANGE:** 5–18 **GRANT:** £136,500

AREA OF INQUIRY

The work of the project will fall into two parts. During 1972–1973 the project will carry out research intended

1. to survey current practice in the teaching of race relations in a variety of schools
2. to ascertain from teachers what materials need to be developed to assist them
3. to find examples of good teaching practice
4. to prepare a report of the project's findings.

During 1973–1976 the project will develop materials which will help teachers to encourage in their pupils rational attitudes in race relations. This work has been initiated by the National Foundation for Educational Research, the National Union of Teachers and the National Federation of the Associations of Teachers for the Education of Pupils from Overseas. At this stage, the project will aim:

1. to identify ways in which existing curriculum subjects can contribute towards education for life in a multi-racial society
2. to offer guidance and supporting materials to help teachers in all parts of the country, with or without multi-racial classes, and to prepare pupils for life in a multi-racial society
3. to produce the materials in a form which will help teachers in multi-racial schools to meet the needs arising from the diversity of cultures within schools
4. to collect, evaluate and disseminate information and materials.

PROCEDURE

Since the project is concerned with education in multi-racial schools it will be carried out largely in areas of immigrant concentration. As it is also concerned with education for life in a multi-racial society it will be necessary to include schools in non-immigrant areas such as the south-west and East Anglia and in non-immigrant schools of such areas as Birmingham, Manchester and Bradford.

During the initial research phase, the sample will include 250 secondary schools and 250 primary schools, 150 of each being multi-racial schools, 50 others being in non-immigrant areas and 50 being in immigrant areas but having few or no immigrant pupils. A postal questionnaire to secondary schools will have a general section on school data and separate sheets for heads of departments and subjects to complete regarding their area of the curriculum. In primary schools, the general section will be accompanied by one sheet for comment on the curriculum by headteachers.

The questions to be asked will cover what is now being done in each subject area, what is seen to be the need for curricular change and what teachers see as the need for development of supporting materials. These questions will be asked separately in relation to the teaching of multi-racial classes and preparation of all pupils for life in a multi-racial Britain.

By published request and through LEA bulletins to schools, teacher association bulletins, etc., teachers will be asked to inform the research team of any new approaches in use in their schools and members of the research team will visit schools to enquire further into promising new work.

Following the initial research, materials will be developed as outlined above.

FINAL PUBLICATION

A research report will be prepared for submission to the Schools Council in 1973. The materials are unlikely to be published for some time.

FURTHER INFORMATION is available from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

JUNE 1972

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[R]

MIDDLE YEARS OF SCHOOLING (IN 08 01)

DIRECTOR: **Professor A. Ross**

LOCATION: Department of Educational Research, University of Lancaster, Cartmel College, Bailrigg, Lancaster. **Telephone:** Lancaster (0524) 65201

DURATION: 1968–1972 **AGE RANGE:** 8–13 **GRANT:** £43,080

AREA OF INQUIRY

This curriculum research project grew out of a Schools Council conference on the middle years of schooling held at Warwick in 1967, and attended by representatives from 130 local education authorities and from colleges and university institutes and departments of education. A report of this conference is published as Schools Council Working Paper 22 *The Middle Years of Schooling from 8 -13.*

The project was not set up to be a middle school pressure group, but to consider the whole curriculum appropriate to children in the middle years of schooling whatever type of school being attended. Its specific brief was to investigate the approaches to learning best suited to the needs of children from 8 to 13, bearing in mind:

1. the need to ease the transition from primary to secondary schooling in the present system
2. the opportunities provided by the newly established middle schools
3. the experience already gained with inter-disciplinary studies in junior and secondary schools
4. changing views about the content of the curriculum.

The project has drawn upon the work of other Schools Council projects in this age range, for example Aims of Primary Education (IN 03 01), Science 5–13 (SC 05 01), Social Studies 8–13 (HU 08 01), Religious Education in the Primary School (HU 05 01), Religious Education in the Secondary School (HU 11 03), English in the Middle Years (EN 08 02) and History, Geography and Social Science 8–13 (HU 08 03).

PROCEDURE

The project team's initial task was a survey of interesting work in upper primary, lower secondary and middle schools. This involved not simply a description of 'good practice' but an enquiry into the aims and objectives of the middle school curriculum and to what extent these are being achieved.

The project has also worked closely with teachers on areas of controversy within schooling in the middle years. Papers have been distributed to all teachers' centres in England and Wales for discussion, and the project had received written reports on these discussions from 82 centres involving nearly 1500 primary and secondary teachers, advisers, inspectors, lecturers, etc.

Early papers covered a) *curriculum priorities,* which asked teachers to consider what range of options had the best claim for inclusion in the curriculum if an additional half day were granted, and what should be cut if the week was reduced by half a day; b) *curriculum methods and contents,* asking for a consideration of what practical steps might be taken to ensure continuity in content and method between primary and secondary school; c) *primary secondary transfer,* asking what kind of problems of transfer the teachers are aware of, to what extent there have been developments between schools to overcome them and the effect of closer co-operation; d) *the deployment of teachers,* asking for a consideration of the advantages and disadvantages of specialisation and non-specialisation, of the system of a class teacher to 11 years, and single-subject teachers from 11–13, and of the justification, if any, for change; e) *timetables - the working day,* involving a consideration of detailed subject timetabling, wider subject-areas in larger blocks of time, and free timetabling.

Later papers have covered the place of individual subjects in the middle school curriculum.

PUBLICATION

The project's first report has been published as Schools Council Working Paper 42 *Education in the Middle Years.* It covers the aims and objectives of education in the middle years, the physical, intellectual and socio-emotional development of children aged 8–13, the curriculum, patterns of organisation, and the views of the teachers from the teachers centre discussion groups.

The project's second report will consider individual subjects and forms of integrated studies and their place in the whole curriculum for the middle years; the problems of liaison between primary, middle and secondary schools and some practical suggestions for developments in this area; and the various forms of organisation which appear profitable throughout the middle years age range.

RELEVANT PAPERS AND PUBLICATIONS

Schools Council *The Middle Years of Schooling from 8 to 13* (Working Paper 22) HMSO, 1969, 37½p
Alec Ross 'The whole curriculum for the middle years of schooling' *Dialogue* 4, November 1969
Arthur Razzell 'The Middle Years of Schooling' *Dialogue* 9, September 1971
Schools Council *Education in the middle years* (Working Paper 42), Evans/Methuen Educational, 1972, 70p.

FURTHER INFORMATION is available from Professor Ross or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

JUNE 1972

R

INTERNATIONAL ASSOCIATION FOR THE EVALUATION OF EDUCATIONAL ACHIEVEMENT, Phase 2 (IN 10 01)

DIRECTOR: Dr D.A. Pidgeon (1967–1972)
A. Yates (1972–1973)

LOCATION: National Foundation for Educational Research, The Mere, Upton Park, Slough, Bucks. **Telephone:** Slough (75) 28161

DURATION: 1967–1973 **AGE RANGE:** 10–18 **GRANT:** £21,215 (+ £25,500 from NFER)

BACKGROUND

The NFER, with a grant from the Schools Council, is one of the research organisations from 20 countries that have formed a consortium to participate in the International Association for the Evaluation of Educational Achievement (IEA). The IEA, whose headquarters are in Stockholm, was established in 1960 as the result of a feasibility study, in order to pursue a programme of comparative studies of educational attainment in relation to different forms of school organisation, curricula and teaching method throughout the world. It is an enterprise unique of its kind and remarkably productive in knowledge about the ways in which educational decisions, levels of investment in education, time allotments, levels of teacher education, broad differences in cultural motivations and similar factors affect the end-product of education.

The countries currently involved in IEA are Australia, Belgium, Chile, England, Finland, France, Germany, Hungary, India, Iran, Ireland, Israel, Italy, Japan, New Zealand, Netherlands, Poland, Scotland, Sweden, Thailand and the USA.

PHASE 1

Phase 1 was concerned with the outcomes of mathematics teaching in secondary schools and the results were published as *International Study of Achievement in Mathematics: a comparison in 12 Countries* edited by T. Husen, Wiley and Sons 1967. In the course of this project over 12,000 secondary school pupils were tested in this country and additional information collected concerning their performance in O- and A-level GCE examinations. A Schools Council grant enabled the English data to be analysed and a report has subsequently been published – Pidgeon D.A. *Achievement in Mathematics: a National Study in Secondary Schools,* NFER 1967.

PHASE 2

Building on the experience of the mathematics study, it was decided in 1966 to evaluate education achievement in science (including physics, chemistry and biology), reading comprehension, literature, civic education, French as a foreign language, and English as a foreign language. Civic education and English as a foreign language are not being carried out in this country. It was for Phase 2 that the Schools Council's grant was given.

The work has been split into 3 stages:

1. **Preparatory and pre-testing stage** 1966–1968
   The function of this stage was to construct the following instruments:

   a. Tests in each of the six subject areas for 10 year-olds, 14 year-olds and pre-university students, and for 15 year-olds in the fourth and fifth year of secondary school

   b. Accompanying student, teacher, school and national questionnaires

   c. Descriptive and attitude scales.

Sampling designs and proposals were developed, hypotheses formulated and analysis programmes developed. IEA has also organised international meetings during which attempts have been made to develop a conceptional framework for the cross-national evaluation of educational systems.

2. **Testing in reading comprehension, literature and science** 1970
   140 secondary and 190 primary schools participated in the testing and an average 30 pupils per population were chosen from each school. The coding and checking of the English and Welsh testing materials has taken place at the NFER and the data from all countries is being processed in the USA and Sweden.

3. **Testing in French** 1971
   French tests, covering listening, speaking, reading and writing have been compiled, and testing was carried out during the spring and summer. The results of these tests will be produced as for the previous subject areas.

FINAL PUBLICATION

An international research report will be published during 1973, as will the national report for England.

BACKGROUND

The NFER, with a grant from the Schools Council, is one of the research organisations from 20 countries that have formed a consortium to participate in the International Association for the Evaluation of Educational Achievement (IEA). The IEA, whose headquarters are in Stockholm, was established in 1960 as the result of a feasibility study, in order to pursue a programme of comparative studies of educational attainment in relation to different forms of school organisation, curricula and teaching method throughout the world. It is an enterprise unique of its kind and remarkably productive in knowledge about the ways in which educational decisions, levels of investment in education, time allotments, levels of teacher education, broad differences in cultural motivations and similar factors affect the end-product of education.

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FINAL PUBLICATION

An international research report will be published during 1973, as will the national report for England.

RELEVANT PAPERS AND PUBLICATIONS

A.W. Foshay ed. *Educational Achievement of Thirteen year olds in 12 Countries,* 1962, Hamburg, UNESCO Institute for Education

T. Husen, ed. *International Study of Achievement in Mathematics: A Comparison of 12 Countries,* 1967 2 Vols Stockholm, Almqvist and Wiksell; New York, Wiley

D.A. Pidgeon, ed. *Achievement in Mathematics* 1967, NFER

International Association for the Evaluation of Educational Achievement, Information Brochure 1970. Obtainable from the NFER.

FURTHER INFORMATION is available from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

R

MASS MEDIA AND THE SECONDARY SCHOOL (IN 11 01)

DIRECTOR: Professor J.D. Halloran **RESEARCH OFFICER:** G. Murdock

LOCATION: Centre for Mass Communications Research, The University, Regent Road, Leicester **Telephone:** Leicester (0533) 28437

DURATION: 1967–1971 **AGE RANGE:** 11–16+ **GRANT:** £22,500

AREA OF INQUIRY

The research has been conducted by the Centre for Mass Communications Research at Leicester University, which was established in 1966 under the auspices of the Television Research Committee. The project was established in 1967 to undertake research which would bring to the attention of teachers new and up-to-date information about the pressures mass media bring to bear on education from the outside.

The Centre was asked to prepare a research design which would investigate:

1. the ways in which the mass media impinge upon schools, and
2. the relationship between children's use of and attitudes towards the media on the one hand and teachers' attitudes towards the media (including the way these occur or are used in school) on the other.

From their pilot studies and in preparing their research design, the team took note of the following guiding principles:

i people use the media to meet their needs and media behaviour should therefore be studied in relation to the experience, interests, hopes and future expectations of the individuals concerned

ii pupils from different backgrounds will experience school in different ways; there will also be variations in commitment to school. The project therefore examined the hypothesis that there is a link between low commitment to school and high commitment to what has been termed 'youth culture'

iii teachers' attitudes to the media and the way these are reflected in the classroom vary considerably. Some teachers see their values as being opposed to those presented by the mass media, while others see the media chiefly as aids in facilitating their task rather than impeding it. The project sought to measure and evaluate this variance together with an attempt to do the same for schools as institutions. It attempted to find out whether there is any difference in this 'media commitment' between types of schools.

PROCEDURE

The research design was based on pilot studies and the guiding principles outlined above. It was in two parts: a teacher survey and a pupil survey.

The Teacher Survey was completed in 1969. Information was sought by means of a questionnaire handed to all teachers in some 90 schools, and can be grouped under the following headings:

i Teachers' personal use of the mass media

ii Teachers' attitudes towards the mass media

iii Teachers' assumptions about the influence and effects of mass media both generally and with regard to pupils' work and behaviour

iv The extent to which teachers introduce mass media content into their normal teaching routine

v The extent to which teachers make use of audio-visual material (including educational television) in their teaching.

The main aim of the teacher survey was to provide basic information for use at the second stage of the research on the part played by the 'media orientation' of teacher and/or school in the media behaviour of pupils.

The Pupil Survey. This engaged the attention of the project for most of 1969/70. Information was sought under two main headings, namely, school commitment and media behaviour. Under the first heading information was obtained about such things as academic values, involvement in school activities, and the pupils' own views of school. Under the second heading information was gained on general leisure time behaviour patterns including time spent with the various media, and an attempt was made to find out what particular needs are being met and what functions are being served by different media use.

FINAL PUBLICATION

The research report will be published in 1973. Concerned with the relationship between social class, commitment to or disengagement from school and the values of the mass media, the first part of the report includes chapters on the experiential gap between teachers and pupils with regard to the media, what teachers see to be their role, teachers' perceptions of the influence of the mass media on pupils' behaviour and work, and teachers' use of audio-visual aids. The second part deals with pupils' commitment to and disengagement from school, how pupils spend their spare time, what kind of pop music pupils like and why, fashion, TV and magazines, and the relationship between pupils' commitment to school and their involvement in pop.

The project is also preparing a short document to include an annotated bibliography on areas of mass media and a discussion on ways of using media in the classroom.

FURTHER INFORMATION is available from the project.

The report, when published, will be available for reference in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

R

INDUSTRIOUSNESS AND ACHIEVEMENT IN SCHOOLS (IN 13 01)

DIRECTOR: the late Professor F.W. Warburton **RESEARCH ASSOCIATE:** Dr R. Sumner

LOCATION: Department of Education, University of Manchester, Manchester M13 9PL.

DURATION: 1966–1969 **AGE RANGE:** 13–16 **GRANT:** £10,000

AREA OF INQUIRY

This research project was commissioned as part of the Schools Council's programme for the raising of the school leaving age, in order to gain information about what factors affected pupil achievement in schools. The basic strategy of the project was to examine the relationship between certain *predictors* (such as ability, attainment, personal qualities, attitudes, interests, motivation, social background at home and school), and the *criterion* of industriousness.

PROCEDURE

From a cross-section of schools, 800 children nominated by the schools, were studied. The team organised their research within the following framework of questions:

1. what part is played by the pupil himself in school achievement?
2. what part is played by ability in school achievement?
3. why is there differentiation of achievement in different school subjects?
4. what part is played by home background in school achievement?
5. what part is played by the school in achievement?
6. what is the influence of the tone of the pupil's school?
7. at what stage in their school careers do some pupils become allergic to education?
8. how are these major influences related to one another in producing high or low achievement?
9. why do some pupils who start well drop behind, and vice versa?
10. why do some pupils become allergic to education?

FINAL PUBLICATION

A report for committee circulation only was submitted to the Schools Council in 1969; it was accompanied by selected transcripts of interviews with a sub-sample of pupils together with a commentary on the interviews.

Whilst the Schools Council did not exercise its option to publish these reports, a book based upon them but differing from them in several important aspects has been published by the National Foundation for Educational Research entitled *Achievement in Secondary School: Attitudes, Personality and School Success* by R. Sumner and F.W. Warburton, 1972, £3.60.

FURTHER INFORMATION

Copies of these reports are available for reference in the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

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T/P/R

NORTH-WEST REGIONAL CURRICULUM DEVELOPMENT PROJECT

(IN 13 02)

DIRECTOR: **Dr W.G.A. Rudd**

LOCATION: School of Education, University of Manchester, Manchester M13 9PL
Telephone: 061-273 3333

DURATION: 1967–1972 (Schools Council support until 1970). **AGE RANGE:** 13–16+
GRANT: £30,000 (+ up to £19,000 annually from LEAs)

AREA OF INQUIRY

The project was established in 1967 to study curriculum development in local centres. It comprises a consortium of fifteen local development centres established and maintained by thirteen LEAs, Lancashire, Blackburn, Bolton, Blackpool, Burnley, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Warrington and Westmorland, whose work is co-ordinated through the University of Manchester School of Education and controlled by a steering committee with a majority of practising teachers.

The project was founded upon Schools Council Working Paper 10 *Curriculum Development: Teachers Groups and Centres,* and thus in addition to developing new materials for use with early leaving pupils, is also studying in detail the implications of the two basic principles of curriculum development work in local centres:

1. that motive power should come primarily from local groups of teachers accessible one to another
2. that there should be effective and close collaboration between teachers and all those who are able to offer co-operation.

The Schools Council's grant was to support the establishment of the regional centre. Although the Council considers as a rule that local curriculum development is a local responsibility, it was felt in this case that the experience gained by the project in organising group development would have a wider significance.

PROCEDURE

In 1967 regional groups were set up to prepare handbooks on objectives in ten curriculum areas for early-leaving pupils in anticipation of the raising of the school leaving age. These were English, mathematics, science, religious and moral education, social education, boys' crafts, girls' crafts, music, art and studio subjects, and physical(including health) education. The ideas in these handbooks were studied in local centres, and there emerged from the statement of objectives a recognition of the need to plan complete courses.

In spring 1968, all secondary teachers in the region were invited to submit details of new teaching programmes they wished to develop for early-leaving 4th and 5th year pupils, and from the 100 replies received, seven were adopted as regional schemes:

Experimental methods of teaching and school organisation (particularly team teaching)
English
Moral Education
Technology
Domestic Studies
Social (and health) education
Creativity in the arts

Development teams of 25 teachers in each of these areas have been developing new courses, and testing new ideas and new materials, in a considerable number of schools. These have been evaluated, revised and prepared for publication.

MATERIALS

Fourth year materials will be published during 1972, and fifth year materials during 1973.

English *Situations: an RSLA course in English*
Published by Blackie and Son Ltd., Bishopbriggs, Glasgow G64 2NZ. Price: £36 (including purchase tax).

The material is in two parts; section one for fourth year pupils and section two for fifth year pupils. Each section contains enough material for a teacher and a class of up to 40 pupils, and includes teachers' notes, pupil materials, tapes, slides, photographs and work-cards.

Domestic Studies *Myself*
Published by Holmes McDougall Ltd., 30 Royal Terrace, Edinburgh EH7 5AL. Price: approx. £13. per pack.

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Domestic Studies *Myself*
Published by Holmes McDougall Ltd., 30 Royal Terrace, Edinburgh EH7 5AL. Price: approx. £13. per pack

Each pack will contain teachers' notes and materials for 20 pupils.

Social Education	*Vocation*	approximately £16.50
	Consumer Education	approximately £10.00
	Freedom and Responsibility	approximately £14.50
	Conservation	approximately £10.00

Published by Macmillan Education Ltd., Houndmills, Basingstoke, Hants. Teachers' books and spare work sheets available separately.

Vocation is a kit designed for both fourth and fifth year pupils and should provide a year's work for up to 50 pupils. *Consumer Education, Conservation* and *Freedom and Responsibility* are intended for fourth year pupils, and each kit gives a minimum of a term's work for up to 50 pupils.

Technology and **Health Education**
These courses are to be published by the project itself and will be available through local teachers' centres. Each course costs £4 including postage.

The **Creativity** group is preparing at least two reports, each including written descriptions or examples of stimulus situations e.g. a set of slides on man-made forms and natural forms.

The **Team Teaching** group is preparing a research report comparing situations: a) where the school chose both the team of teachers and its own programme b) where a school used materials provided by the group. **Moral Education** materials will not be published.

A report of the project's work and experience will also be produced. This is expected to reach the Schools Council later in 1972 and to cover work done in the project between April 1967 and July 1972.

DIFFUSION

The bulk of the diffusion programme will take place within the LEAs which have been involved in the project from its inception.

EVALUATION

The materials are being assessed in terms of the course objectives and revised in the light of this assessment. There is also a programme of classroom evaluation to assess the impact of the course upon the pupils.

EXAMINATIONS

Contacts have been made with the two local CSE boards who are willing to accept proposals for Mode 3 examinations based on the project's courses.

RELEVANT PAPERS AND PUBLICATIONS

Forward from Newsom: a call to action. Proposal for the establishment of a regional scheme of curriculum development for raising the school leaving age. November 1966. Free from the project

Schools Council *Raising the School Leaving Age* (Working Paper 2), HMSO 1965, 17½p

Schools Council *Curriculum Development: Teachers Groups and Centres* (Working Paper 10) HMSO, 1967 10p

W.G.A. Rudd 'Objectives as Reference Points in curriculum development' *Education of the Deaf* December 1967

W.G.A. Rudd 'The North West Regional Curriculum Development Project' *Forum* 10, 1968

W.G.A. Rudd 'Curriculum innovation: regional and local efforts' in Bar, M.R. *Curriculum Innovation in Practice*, Edge Hill College, Ormskirk 1969

W.G.A. Rudd 'Curriculum model building' in Butcher H.J. and Pont H.B. *Educational Research in Britain* 2, ULP 1970

'Curriculum in the North West' *Dialogue* 7 1971 February

Schools Council *Choosing a curriculum for the young school leaver* (Working Paper 33) Evans/Methuen Educational 1971, 26p.

FURTHER INFORMATION is available from the project.

Copies of all published materials and items listed above are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

T/P

CAREERS EDUCATION AND GUIDANCE (IN 13 03)

DIRECTOR: K. Devine

LOCATION: The Village College, Impington, Cambridge CB4 4LU. **Telephone:** Histon (022 023) 3066

DURATION: 1971–1974 **AGE RANGE:** 13–18 **GRANT:** £75,000 (+£60,000 from industrial and other organisations).

AREA OF INQUIRY

The project has been established to produce classroom materials which will help the pupil to get a realistic foretaste of the sort of experience and problems he will face in working life. Its main aims are:

1. to develop a range of materials varying in complexity and apropriate for different ages and the whole ability range. These will be designed to arouse interest through model situations, simulated work problems for individuals and groups, work analysis, and will provide personal responses to the demands of pupils. All will be supported by audio-visual aids and will provide a series of graded stepping stones by which understanding through experience can be gained.
2. to explore methods and types of courses - from separate careers study to work integrated into other subjects - through which these materials can be used most effectively in the classroom and through which the way can be paved towards actual work experience
3. to study the practical organisation of careers information in schools, so that pupils stimulated by the use of new materials and methods may pursue their own enquiries into detailed careers information more purposefully
4. to examine the setting of this work within the curriculum and total guidance programme of the school - with particular reference to careers departments, tutorial care, counselling, the Careers Advisory Services, and work experience
5. to pay attention to the problems of adapting its materials to suit particular local situations
6. to establish a programme of evaluation which will make use of the informed comments of careers teachers, careers officers and organisations.

The concept of careers education used here is not primarily concerned with specific job selection, but with stimulating an understanding of the many varieties of work and their interdependence. It is seen, not as a short-term burst of information-giving, but as an active and continuing educational process, which should involve careful co-ordination with the system of personal and educational guidance in the school.

The project is based upon the conviction that careers education is an integral part of the curriculum for all pupils, and it is intended that the programme should start in the third year.

PROCEDURE

It is envisaged that the project should work in close co-operation with the many organisations already working is this field, and that by consultation over the type of materials already available or needed, the content of courses and the development of mutual support and interaction, the work of the project could be of considerable significance in developing materials, ideas and understanding.

The trial materials will be tested in pilot schools in four areas representative of various parts of the country, type of school and type of employment available locally, covering rural and urban patterns. The materials will also be available to associate schools.

In addition there will be a series of local units, consisting of career teachers, careers officers and representatives of local employers; these units will produce material of local relevance and will be serviced by a team member, who will offer support and assistance in a variety of ways. Local groups interested in co-operating in this venture are invited to contact the director.

The CBI and the TUC have indicated their support; the Central Youth Employment Executive and the Careers Research and Advisory Centre have both given their financial support and will be involved with the work of the project.

MATERIALS

Publisher: Not yet selected. Publication from 1974.

It is envisaged that the materials will form three basic sections: a Foundation Course (mainly for third year pupils), Stage I (for fourth and fifth year pupils) and Stage II (for sixth and seventh year pupils).

RELEVANT PAPERS AND PUBLICATIONS

Schools Council *Careers Education in the 1970s* (Working Paper 40), Evans/Methuen Educational, 1972, 80p. The report of the Schools Council Working Party on the transition from school to work.

A paper outlining objectives and criteria in careers education and the proposed strategies to be adopted by the project is available from the project.

FURTHER INFORMATION from the project director, or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

JUNE 1972

T/P

COMPUTERS IN THE CURRICULUM (IN 14 01)

DIRECTOR: R.E.J. Lewis

LOCATION: Centre for Science Education, Chelsea College, University of London, Bridges Place, London SW6 4HR. **Telephone:** 01-736 3401

DURATION: 1973–1976 **AGE RANGE:** 14–18 **GRANT:** £33,600

AREA OF INQUIRY

Recent years have seen a growing interest by teachers, particularly mathematicians, in the possibilities of computer studies in schools. This interest has been accelerated by trends towards computer-orientated mathematics and by a growing awareness of the computer as a major social influence in the world. Computers in schools hitherto have largely been used either for teaching programming techniques or for demonstrating the use of the computer for solving mathematical problems. This project will seek to discover how the use of a computer could help assist the teaching of particular topics in a number of subjects other than mathematics. Biology, chemistry, physics, geography and social studies will be among the subjects examined. The work will be concentrated on the fifth and sixth forms of secondary schools and selected sections will be suitable for all ability ranges.

PROCEDURE

Modules of work will be produced, in the first instance on topics which obviously lend themselves to computing, but also in more experimental fields. The modules will be tried in pilot schools and revised as appears necessary with the co-operation of the teachers involved. The value of using the computer for each topic will be gauged critically by the experienced teachers using the materials during the trials.

FURTHER INFORMATION is available from April 1973 from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

N.B. THIS PROJECT WILL NOT START UNTIL APRIL 1973.

A parallel project, supported entirely by Chelsea College, has been running since 1971. This study is in the field of simulation of science experiments by computer, particularly in those areas where science teaching projects see the need for the discovery approach but where experimentation is at present not feasible.

JUNE 1972

[R]

CURRICULAR NEEDS OF SLOW LEARNING PUPILS (SP 05 01)

DIRECTOR: W.K. Brennan

LOCATION: Trinity Road County Primary School, Chelmsford, Essex CM2 6HS
Telephone: Chelmsford (0245) 55763

DURATION: 1971–1974 **AGE RANGE:** 5–16 **GRANT:** £37,050

AREA OF INQUIRY

The project was set up on the recommendation of a Working Party concerned with the needs of handicapped children, as the first in the Schools Council's programme of work in special education. The Working Party considered it necessary to look at the curriculum as a whole rather than to develop particular curriculum areas. It seemed to them essential that the curriculum for slow learning children should not be a diluted or slower paced version of the normal curriculum, but must take into account the possibility of a qualitative difference in the process of concept formation which may follow from a slower and sometimes uneven rate of learning. The group of children being considered includes slow learning children in ordinary schools, as well as children attending special schools. The project is concerned with the whole area of the curriculum for the lower 15% of the school population between the ages of 5 and 16.

The aim of the project team is thus to examine work already being done with slow learning pupils, and to produce a curriculum bulletin describing models of curricula which appear to meet certain agreed aims which reflect the effect of differing environments on curriculum content, and the interaction of school organisation with curriculum aim and content.

PROCEDURE

During the project's first phase the team considered the specific educational objectives appropriate for slow learning pupils, in the light of guidance received from the Working Party on Special Education concerning general aims. During the same period the project circularised all local education authorities about its work and received nominations from schools wishing to participate in the project.

During the second and longest phase members of the project team have been visiting numbers of primary, secondary and special schools throughout the country, where they have been observing and analysing good practice in a variety of organisational contexts and across all subject areas of the curriculum.

DIFFUSION

It is hoped to arrange a number of national and local courses during 1973/4.

FINAL PUBLICATION

The final stage will be the preparation of a curriculum bulletin for teachers and others who are interested in the education of slow learning pupils which will describe a number of models of good practice in the light of the aims and objectives identified by the project team and the Working Party as being particularly appropriate to the needs of the least successful 15–20% of the schools' population.

FURTHER INFORMATION is available from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

The project would be glad to receive ideas, suggestions, accounts of experience with slow learners etc. from individual teachers specialising in slow learners or from class or subject teachers who have developed work with such pupils.

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R/T

LANGUAGE DEVELOPMENT FOR DEAF PUPILS (SP 08 01)

DIRECTOR: Dr D.C. Wollman HMI

LOCATION: Centre for Educational Technology, Educational Development Building, University of Sussex, Falmer, Brighton BN1 9RG. **Telephone:** Brighton (0273) 66755

DURATION: 1973–1976 **AGE RANGE:** 8–12 **GRANT:** £39,000

AREA OF INQUIRY

Severe or profound deafness deprives children of the means of acquiring language naturally, so that, although distributions of intelligence amongst them seems to be normal, their learning is rudimentary in comparison with that of other children. Deaf school leavers are frequently deficient not only in oral ability but also in written language. There is a need for special programmes designed to further pupils' language development by organising carefully prepared and structured learning experiences and systematising the appropriate language associated with them. The project will study ways of helping teachers to use the environment to encourage communication and to develop systematically the language arising from the experiences provided. An attempt will also be made to assess children's communication needs and to encourage understanding and expression of ideas not only through verbal symbols but through gesture, mime, art, movement and the manipulation of materials.

PROCEDURE

During the first year initial contact will be made with schools throughout the country and first units of programmes will be worked out and applied in some of these schools. After a period of preliminary discussion and planning the project team will spend much time in schools discussing programmes with teachers and arranging the testing of units of work. National and regional conferences may be held at which teachers and team members could discuss progress and future development. In the second year, schemes of work already operating in the schools will be extended by the planning of further units of work whilst the original units, amended in the light of experience, will be extended to a further group of schools. This procedure will continue into the third year, when a final report will be written. This will include an assessment of the project by the team and by the teachers involved.

FURTHER INFORMATION is available after September 1973 from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

N.B. THIS PROJECT WILL NOT START UNTIL SEPTEMBER 1973.

96

T/P

BILINGUAL EDUCATION PROJECT (WE 05 01)

DIRECTOR: G.E. Richards

LOCATION: Glamorgan Education Committee, 3 Gartholwg, Llanilltud Faerdre, Pontypridd, Morgannwg. **Telephone:** Newton Llantwit (044 362) 3640

DURATION: 1968–1975 **AGE RANGE:** 5–7+ (pilot study) 5–11 (main project) **FINANCE:** £107,754

AREA OF INQUIRY

The pilot study into bilingual education in primary schools in the anglicized areas of Wales was set up to enable the initially monoglot English-speaking child to achieve by the end of the primary stage of education a standard of attainment in Welsh comparable to that attained at the same age in English by the initially monoglot Welsh-speaking child. It was felt that achievement of this standard in Welsh and English would lead to fuller participation in both cultures.

The project's main aims are:

1. to formulate an educative programme for primary schools in anglicized areas which will gradually allow the pupils to become bilingual, by basing second-language learning on the activities and experiences of the child, beginning in the reception class
2. to consider the methods best suited to the rapid acquisition of Welsh by such pupils
3. to prepare and evaluate materials for classroom use and, in doing so, to strive to extend and enrich the range of the pupils' intellectual and social experience
4. to administer a battery of tests to the project group and to a matched control group in order to measure the effect of the programme at the end of the infants' school and in the junior school
5. to provide in-service training for teachers engaged in the project.

PROCEDURE

Twenty eight infant schools in the anglicized areas in eleven Welsh counties were involved in the pilot study. The project team prepared eight teachers' handbooks, together with listening books and relevant tapes, and further material for use in these second language lessons such as recorded songs, simple dance tunes, rhythm and movement activities, physical education, nature lessons, puppet theatre work and graded Bible work. Questionnaires, written reports and taped records of the children's development provide an on-going evaluation of the work being done.

As a result of the pilot study, a further grant has been awarded to continue the work done in the original 28 schools, to extend bilingual education to other classes at the infant level, and to follow the infants through to the junior school. The project now operates at both infant and junior levels, in a total of 56 schools. It is assumed that before leaving the infant stage the children will have become sufficiently bilingual to be able to profit from instruction through the medium of both languages.

MATERIALS

The eight teachers' handbooks and other materials outlined above are being revised in the light of experience in the final schools. The project will also be developing further materials such as graded readers, project schemes for junior levels, graded commentaries for film, film-strip and cine-loop films, graded drama work, listening books etc. These will all be published in due course.

EVALUATION

Evaluator: C.J. Dodson

The evaluation has been concerned with classroom observation and questioning and with an examination of the material. An account of this evaluation is given in a paper by C.J. Dodson, one of twelve contributions to a symposium of evaluation studies to be published in the Schools Council Research Studies series by Macmillan Education in 1973.

TRAINING AND DIFFUSION

The project assumes that fluent Welsh-speaking infant/junior trained teachers will be in charge of classes using project materials, and courses are being organised in association with LEAs teachers' centres, colleges of education and at the National Language Unit. Details of these are available from the project.

FURTHER INFORMATION is available from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

T/P

SCIENCE AND MATHEMATICS IN WELSH MEDIUM SCHOOLS (WE 05 02)

DIRECTOR: M. Griffiths

LOCATION: Faculty of Education, Cambrian Place, University College of Wales, Aberystwyth, Cardiganshire. **Telephone:** Aberystwyth (0970) 7872

DURATION: 1969–1972 **AGE RANGE:** 5–12 **GRANT:** £24,000

AREA OF INQUIRY

The project was commissioned by the Schools Council's Committee for Wales to investigate the special problems of securing curriculum reform in the teaching of science and mathematics through the medium of Welsh in children up to 12 years old. It was felt that whilst for 300 years the English language had been used and developed as a medium of communication for scientific ideas as a part of English culture, Welsh culture is predominantly literary and musical and has not, until very recently, been influenced by scientific ideas and developments.

Investigatory approaches require a great deal of discussion between children and the teacher and also a far greater use of written language in the learning of science and mathematics. These discussions form the essential basis for success and it is therefore imperative that Welsh speaking children be given the opportunity to conduct these discussions and to write about their experiences through the medium of their mother tongue.

The main aims of the project were:

1. to encourage an investigatory approach in the learning of science and mathematics
2. to aid the teacher to adopt a flexible approach to his teaching and to support him during the transitional period
3. to prepare suitable materials for teachers and children.

PROCEDURE

The project was concerned to achieve for Welsh speaking children the same sort of child centred investigatory approach to learning as had been achieved for English children by the Nuffield Primary Mathematics Project (MA 05 01) and Junior Science projects.

In seeking to provide suitable books for children and their teachers, the project made use of the already existing lists of mathematical and scientific terms prepared by the University of Wales School of Education. It is hoped that the provision of such books will increase the facility of both teachers and children in using the Welsh language to discuss mathematical and scientific topics. The books for children are aimed at arousing their enthusiasm towards mathematics and science, making them aware of their surroundings and creating in them an urge to investigate it further. It is hoped they will be used in an open-ended way to promote discussion in the classroom.

MATERIALS

Publisher: English Universities Press, Saint Paul's House, 8–12 Warwick Lane, London EC4P 4AH from 1973.

Two teacher's guides and 63 pupils' booklets have been developed and tested in some 65 Welsh speaking schools. These are as follows:

Teacher's guides

1. *Ymchwilio Am Wybodaeth* (Researching for Knowledge)
   This deals with the aims of the approach, suggests suitable starting points, gives a number of case studies and lists suitable apparatus and books which might be found useful.
2. *Sylfeini Mathemateg* (Foundations of Mathematics)
   This covers the work in Mathematics. It contains chapters on Number; Money and Fractions; Length, Weight and Volume; Area and Shape; and Graphical Representation.

Pupils' Books (7 to 9 years) in Welsh

1. The Weather: *Snow and Ice; The Sun; Rain; Wind*
2. *Air; Water*
3. Science Around Us: *Heat; Magnetism; Sound; Light; Electricity*
4. Measure and Shape: *Looking for Shapes; Simple Shapes; How Long? Come and Weigh*

Pupils' Books (9 to 13 years) in Welsh

1. Rocks: *Collecting Rocks; Experiments with Rocks; Slate; Coal; Granite*
2. Inclement Weather: *Wind; Snow and Ice; Rain; Thunder*
3. Moving: *Falling, Lifting and Carrying; Pulling, Dragging and Sliding*
4. Colourless and Shapeless: *Air; Water*
5. Science Around Us 2: *Light; Sound; Electricity; Heat; Magenetism*
6. Nature Study: *Everything under the Sun; Everything in its Place; Discovering Fruits; Experimenting with Seeds; Leaves*
7. Money: *The Development of Money; Minted Coins; The Money of Different Countries; Banks and their Work*
8. Measuring: *What time is it? What is the date? How far? What is the weight?*
9. Good Luck: *Heads or tails? More about pennies; Choosing a train; Wanting a holiday*
10. Constructing and playing: *Curves; Solids; Fun with Dots; More Fun with Dots*
11. Shape and size: *Looking at Angles; Common shapes; Symmetrical shapes; Area of Rectangles; Area of Different Shapes*
12. Numbers: Old systems: *Early processes; Different Bases; Mathematical puzzles.*

DIFFUSION AND TRAINING

A number of meetings have been held all over Wales during the course of the project to introduce to teachers the work and materials of the project. A final course is planned at Aberystwyth in the summer of 1973, by which time the first materials should be available.

RELEVANT PUBLICATIONS

Primary Education in Wales: a report of the Central Advisory Council for Education (Wales) HMSO, 1967 £1.62½ (The Gittins Report)

Schools Council *Science in the primary school* (Field Report 5), free from the Schools Council

Merfyn Griffiths 'Darganfod Rhif' UCAS, 1968

Merfyn Griffiths 'Project Dysgu Gwyddjoniaeth a Mathemateg' *Yr Arthro*, September 1969

Materials published by the Nuffield Mathematics Project and Nuffield Science Project.

FURTHER INFORMATION

Items listed above and materials when published are all available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

T/P

WELSH AS A FIRST LANGUAGE AT THE PRIMARY LEVEL (WE 05 03)

DIRECTOR: **Miss Menai Williams**

LOCATION: The Normal College, Bangor, Caernarvonshire. **Telephone:** Bangor (0248) 2122

DURATION: 1972–1975 **AGE RANGE:** 5–11 **GRANT:** £45,000

AREA OF INQUIRY

The aims of the project are:

1. to promote the growth of primary school children, through Welsh, towards individual maturity, creating conditions and materials most advantageous to social, imaginative and intellectual development
2. to develop a child's ability to communicate and to express himself in this language. This may involve research in what constitutes the ability to communicate in different situations for different stages in the primary school
3. to provide for the enrichment of the child's lingusitc resources in Welsh, since it is mainly through the agency of language that mental processes are set up and function. The objective would not be to set down standards to which all must conform but rather to seek to discover what the norms are at different age levels so that teachers may have a clearer impression of the general pattern of development over the primary school years.

PROCEDURES

The following areas will be studied:

Talking. The project will seek to develop the most effective and meaningful 'talk situations' and to discover

1. which kinds of subjects, activities or experiences are immediately important to a child and will motivate and interest him sufficiently to cause him to concentrate on what to say and how to say it
2. which objects and stimuli in the environment encourage the growth of various linguistic responses
3. which situations/confrontations can produce spontaneous responses.

Reading. The project will seek to identify kinds of reading material which would meet the needs and interests of the Welsh child and aid his development of language. The teamwill look critically at the kind of material available in Welsh, and where there is an inadequacy, to suggest ways of improving the situation. The project will need to consider the place of literature in the primary schools and suggest types of material which will develop the capacity for human sympathy, extend imaginative and emotional understanding of human action and interaction and give a clearer insight into the pattern of human relationships and of human behaviour.

Writing. The project will examine the different aspects of personal writing and consider their value at different stages in the development of the primary school child. It will inquire into ways in which intensive writing, free writing and writing about significant experiences are used in Welsh, and the part enactment plays in the growth to oracy and literacy.

MATERIALS

It is envisaged that booklets, photograph albums, individual work sheets, tapes, slides, drawings, film strips will be prepared.

FURTHER INFORMATION is available from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

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JUNE 1972

T/P

THE TEACHING AND LEARNING OF ENGLISH IN WALES (WE 08 01)

DIRECTOR: D.W.H. Sharp

LOCATION: Department of Education, University College, Singleton Park, Swansea, Glamorgan SA2 8PP. **Telephone:** Swansea (0792) 25678

DURATION: 1973–1976 **AGE RANGE:** 8–13 **GRANT:** £34,550

AREA OF INQUIRY

Research conducted by the Attitudes to and Motivation for the Learning of Welsh and English in Wales project (WE 10 01) revealed that there was no clear distinction discernable between the contents and methods of teaching English in the predominantly Welsh-speaking areas as compared with the predominantly English speaking areas of Wales. No systematic attention is given to English as a second language nor to particular problems of English teachers in areas which are anglicized but where the individual effects of Welsh are evident, except by chance where teachers are aware, for example, of particular aspects of Welsh influence upon English idiom. There is a need for a schematic, firmly-based and generally accepted approach.

PROCEDURE

The project will begin by selecting and adapting existing error analysis tests which will then be used with a small sample of children in carefully selected schools. The 'Attitudes' test results produced by the earlier project will be analysed and considered further. A comparative study of approaches to the teaching of English as a second language will be conducted by seeking the co-operation of teachers willing to use one of the methods under investigation for a period of two years. The main work of the project will be the production of teaching materials which will evolve from this diagnostic work. These materials will range from suggested syllabuses, methods and other guidelines for teachers to carefully planned classroom materials graded in an attempt to cater for the varying linguistic backgrounds of the pupils. It is hoped to lead pupils through a variety of interesting situations in which their language can be practised and extended and to cover in different systematic ways the salient features identified by the analyses.

RELEVANT PAPERS AND PUBLICATIONS

The report of the project on Attitudes to and Motivation for the Learning of Welsh and English in Wales (WE 10 01).

FURTHER INFORMATION is available (after September 1973) from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

N.B. THIS PROJECT WILL NOT START UNTIL SEPTEMBER 1973.

R

ATTITUDES TO AND MOTIVATION FOR THE LEARNING OF WELSH AND ENGLISH IN WALES (WE 10 01)

DIRECTOR: D.W.H. Sharp

LOCATION: Department of Education, University College, Singleton Park, Swansea, Glamorgan SA2 8PP. **Telephone:** Swansea (0792) 25678

DURATION: 1967–1971 **AGE RANGE:** 3 age groups – 10+ 12+ 14+ **GRANT:** £34,000

AREA OF INQUIRY

The aims of the project were:

1. to establish patterns of attitude to Welsh and to English in three age-groups in schools throughout Wales
2. to determine whether there is a significant relationship between attitude to each language and attainment in it
3. to examine other factors in the language learning situation in Wales – information gathered includes the provision made for the teaching of the two languages and the pupil's use of language both inside and outside the classroom
4. to consider methods and materials used in the teaching of the two languages.

PROCEDURE

Stage 1 testing involved the administration of attitude scales and questionnaires to the whole random sample, which was school-based and stratified into three linguistic 'bands' according to the percentage of Welsh speakers in the area. Bilingual schools were tested separately. During Autumn 1969 these scales and questionnaires were completed satisfactorily by approximately 6½% of the total school population in each of the three age-groups. Thurstone-type attitude scales were used to measure attitude towards Welsh and towards English and a semantic differential test was used with the 14 year-old pupils only. Four questionnaires were designed for LEAs, and headteachers, teachers and pupils in the sample schools.

Attainment tests were administered to a sub-sample of sample schools in Summer 1970. These included a composition test to be written by the pupil in his first langauge and an objective test in Welsh as a first or as a second language, and in English, for both first and second language pupils.

A large number of practising teachers contributed to the preparation of both attitude scales and attainment tests. Some 180 teachers in 16 groups met monthly all over Wales to discuss teaching methods and materials in Welsh and English. Papers on various aspects were distributed to LEAs in Wales for use as discussion documents in teachers' centres.

FINAL PUBLICATION

The research report will be published in Welsh and English in the Schools Council Research Studies series by Macmillan Education in 1973. Provisionally entitled *Aspects of Welsh and English: A Survey in the Schools of Wales/ Agweddau ar gymraeg a saesneg: arolwg yn ysgolion Cymru,* the report describes patterns of attitude towards the two languages and how these change with increasing age. In examining the relationship between attitude and attainment it determines the relative importance of such major factors as general ability, linguistic background, socio-economic status and sex. The results of the specially created bilingual schools are of particular interest, as are the descriptions of LEA and school policy and practice.

RELEVANT PAPERS AND PUBLICATIONS

Attitudes to Welsh and English: An Interim Report 1970, available from Singleton Bookshop, College House, Singleton Park, Swansea, Glam.SA2 8PP, price 40p (post free). This report gives an account of the main lines of development up until September 1969 and appends copies of the attitude scales and questionnaires.

FURTHER INFORMATION is available from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

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R

IMPLICATIONS OF SOCIAL AND CULTURAL CHANGE FOR SECONDARY EDUCATION IN WALES (WE 11 01)

DIRECTOR: Dr A Gwyn Jenkins

LOCATION: Departments of Education and Sociology, University College, 34 Cathedral Road, Cardiff CF1 9YG. **Telephone:** Cardiff (0222) 20781

DURATION: 1967–1971 **AGE RANGE:** 11–18 **GRANT:** £34,000

AREA OF INQUIRY

Considerable social, industrial, economic and cultural changes have occured in Wales during recent years, and it was felt that little had been done in the schools to take account of changing patterns of heavy industry, population change, new towns and depopulation. The project was therefore established to study:

1. the existing curriculum of the secondary schools, especially the curriculum of the 15–18 year-old pupils, and its assumptions
2. the more significant changes in the social, industrial and cultural pattern of representative areas of Wales
3. the degree to which these changes are important for the curriculum, and to offer suggestions for relating the curriculum to these changes wherever it is important to do so.

PROCEDURE

Information for 1938, 1948, 1958 and 1968 has been collected, together with significant material from intervening years, relating to secondary education and selected major demographic, technological, economic and cultural changes.

Sociological component
The concept of 'social change' is here understood to mean any change in the values, roles, institutions and socio-cultural systems of society. The research team have examined two main problems:

1. career opportunities for those with industrial training and part-time further education, and the seeming discrepancies in opportunity between Wales and England
2. full time higher education as a means of upward social mobility and the apparently decreasing effect of such education in terms of mobility in Wales as compared to England. The project has also investigated the effect of bilingualism on career choice and mobility.

Educational component
In addition to the historical review of the work of the schools in the broad context of Welsh education, the main elements in the reseach programme were:

1. a survey of the curricula of all secondary schools in Wales at present, including independent and special schools
2. a survey of pupil attitudes from a broadly based representative sample of Welsh secondary schools
3. a more intensive study of a highly selected sample of schools and the attitudes of pupils within them
4. interviews with teachers, headteachers, administrators and others whose work brings them into contact with secondary schools.

FINAL PUBLICATION

The Schools Council decided not to exercise its option to publish the research report, but arrangements for publication elsewhere are currently being discussed.

FURTHER INFORMATION is available from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

R

WELSH AS A FIRST LANGUAGE AT THE SECONDARY STAGE (WE 11 02)

DIRECTOR: Dr T. Emrys Parry

LOCATION: Departments of Linguistics, Education and Welsh, University College of North Wales, Bangor. **Telephone:** Bangor (0248) 51151

DURATION: 1969–1974 **AGE RANGE:** 11–16 **GRANT:** £58,900

AREA OF INQUIRY

The aim of the project is to produce a rich variety of source materials for the teaching of Welsh as a first language.

PROCEDURE

Linguistic Aspect

Preparation of a Linguistic Source Book. The linguistic source book is designed to be used in the teaching of Welsh as a first language and is essentially an explanatory work which attempts to equip native speakers of Welsh with a knowledge and awareness of the nature and structure of contemporary spoken and written varieties of the language. As such it is aimed at the teacher and is intended as a store for teaching materials; it therefore acts not as a teaching manual but as a repository of information about Welsh which must be used selectively, according to the requirements of the teaching situation. Its composition and design are based upon accepted principles of linguistic science and many recent insights are incorporated. The complete work falls into three major sections: an introductory section which discusses *basic attitudes to language* including controversial issues relating to problems of usage; the second section describes and discusses aspects of the *syntax and semantics* of Welsh; the third and final section discusses the question of *language variation* (mainly in situational terms, although regional influences are mentioned). In its role as a reference book on the data of Welsh, the source book could also serve those who are preparing materials for the teaching of Welsh as a second language. The book should be available in 1973.

Developmental Aspect

The project aims to explore a variety of learning situations, provide for the development of the linguistic resources of children, develop the linguistic competence of children by setting up situations which will give them a wide experience of language in use, promote the personal growth of children, and foster a sensitive response to literature.

MATERIALS

Publisher: Not yet selected.

A first series of source materials on a variety of themes for children in the 11–13 age group are in preparation, and on trial until July 1973.

The titles in the first series are:

1	*Home and Family*	6	*Ghosts and Mysteries*
2	*Creatures*	7	*Alone and with Friends*
3	*Schoolday Experiences*	8	*Strange Worlds*
4	*All Through the Year*	9	*The Sea*
5	*Adventure*	10	*Things and Machines*

A second series of source materials will follow for children in the age group 13–15. These will become available for trial purposes during the academic year 1972–3.

A further series of booklets to promote some activities suggested in the source books are being prepared:

These books are of two types

a booklets intended for pupils

b study papers to promote discussion of some of the methods, activities and procedures encouraged by project's source materials.

Two booklets in this series are already available:

1 *The Five Senses*
2 *Free Writing*

FURTHER INFORMATION is available from the project or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

T/P

THE HISTORY OF ENGLAND AND WALES: AN INTEGRATED COURSE
(WE 11 03)

DIRECTOR: Hugh Thomas

LOCATION: Department of History, Glamorgan College of Education, Buttrills Road, Barry, Glam CF66SE **Telephone:** Barry (04462) 3101

DURATION: 1972–1975 **AGE RANGE:** 11–13 **GRANT:** £29,500

AREA OF INQUIRY

Current educational thinking suggests that a topic is more likely to be taught successfully if it is introduced, when practicable, at the local or near local level and then widened to include a comprehensive study at a more general level. In historical studies it is reasonable to assume that a better understanding of the past could be achieved by pursuing its study first in the particular situation which is familiar.

The aims of the project are:

1. to determine the practicability of introducing an integrated Welsh - English history course in which the Welsh past will provide many of the starting points for historical studies in the secondary schools of Wales
2. to explore the possibility of a wider use of local history and local historical sources in the study of history in the secondary schools of Wales
3. to assess methods by which the integration of Welsh and English history can most successfully be accomplished
4. to list the response of teachers and pupils to such an integrated course.

It is arguable that unsufficient attention has been given to the history of Wales in the history courses of many secondary schools in Wales and that, in consequence, the study of history – and not Welsh history only – has suffered. Moreover, such an integrated course would afford a programme of integrated studies a much better opportunity of success.

PROCEDURE

The project will be primarily concerned with the teaching of history in the first three years of a secondary school course. It will involve:-

1. the preparation of specimen history teaching materials
2. the preparation of specimen syllabuses and schemes of work. Decision on a period of study to be covered by the project will be left open pending consultation with participating schools
3. a two year programme of teaching the proposed integrated course in selected schools
4. close co-operation at all stages with the history teachers involved in the project
5. consultations with representatives of various agencies and associated bodies. The project will also seek the advice not only of teachers of history in schools but also of historians at Welsh and English universities and of local historians.

FURTHER INFORMATION is available from the project director, or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

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R

SAMPLE SURVEY OF PARENTAL ATTITUDES (HC 05 01)

DIRECTOR: the late **Dr S. Wiseman** (NFER) & **Miss R. Morton Williams** (OPCS)

LOCATION: National Foundation for Educational Research, The Mere, Upton Park, Slough Bucks. **Telephone:** Slough (75) 28161
and Office for Population Censuses & Surveys, Atlantic House, Holborn Viaduct, London EC1. **Telephone:** 01-583 8931

DURATION: 1967–1970 **AGE RANGE:** 5–16 **GRANT:** £22,000

AREA OF INQUIRY

This is one of two projects arising from the Plowden Committee primary school samples. The main aim of the project was to attempt by means of appropriate statistical analyses similar to those described in Appendix 4 of the Plowden Report, to explain in quantitative terms the extent to which factors in children's home background and early schooling exerted an influence on their later achievement. For information on the other Plowden 'follow-up' project, see Effect of Environmental and Social Factors in Educational Attainment HC 07 01.

PROCEDURE

In 1964 information about parental attitudes, parental social and economic circumstances, and school factors were collected for approximately 3,000 pupils belonging to three separate age groups in the primary school. The part that these factors played in explaining achievement in the primary school was reported in *Children and their Primary Schools* (The Plowden Report).

Four years later in 1968, as many as possible of the original sample were traced and once again information was collected by means of individual home interviews with parents, tests completed by pupils, and questionnaires administered to heads, teachers and pupils. All three age groups took a short reading test (the Watts-Vernon), a short mathematics test (the Vernon Graded Arithmetic/Mathematics test) and a non-verbal reasoning test (part of Heim's AH4). In addition information was collected on a variety of factors varying from parental attitudes and circumstances, through the qualifications of staff to school-parent interaction and pupils' behaviour as observed by the teachers. In all, complete records of data were obtained from 2,350 pupils who, in 1968, were in the fourth year of secondary school, the first year of secondary school and the last year of primary school.

FINAL REPORTS

There are two research reports. *The Plowden Children Four Years Later* is concerned with the children in the survey and examines and reports on the inter-relationships between home and school characteristics and educational achievement revealed by the 1964 and 1968 studies. *Parents' Attitudes to Education* describes the results of the follow-up survey of parents, examining changes in parents' attitudes to their children's education, in over the four years elapsing since the first survey. It also looks at variations in these characteristics between social classes and between the different types of secondary school attended by the children.

RELEVANT PUBLICATIONS

Children and their Primary Schools: A report of the Central Advisory Council for Education (England) (The Plowden Report) HMSO 1966, 2 vols.
G.F. Peaker *The Plowden Children four years later* National Foundation for Educational Research, 1971, 95p
J.M. Bynner *Parents' Attitudes to Education* HMSO 1972, £1.75.

FURTHER INFORMATION

These publications are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

R

EDUCATION OF TRAVELLING CHILDREN (HC 05 02)

DIRECTOR: C.R. Reiss

LOCATION: West Midlands College of Education, Gorway, Walsall, Staffs.
Telephone: Walsall (0922) 29141

DURATION: 1970–1972 **AGE RANGE:** 5–16 **GRANT:** £5090

AREA OF INQUIRY

The aims of the project were to help the teachers of travelling or gypsy children by providing information about the background, culture and educational needs of the various groups of travelling children, and about those approaches, methods of organisation and teaching materials which have been found to be most successful in schools where there are already significant numbers of these children. The educational plight of travelling children has only recently been highlighted, although the problem was recognised during the last century. The Report of the Central Advisory Council for Education 1967 (The Plowden Report) named these children as 'probably the most deprived group in the country'.

'Travelling children' were defined here as those children whose parents were leading a nomadic life in tents, shelters, caravans and other vehicles, and for the purposes of this project, those who had only recently settled. Besides gypsies, Romanies, didicois, Irish 'tinkers' etc., the survey included the children of showmen, circus people and bargees. Under the implementation of the Caravan Sites Act Part II, an increasing number of the 6,000-8,000 children of travelling parents will be able to attend schools as permanent sites are established.

PROCEDURE

Initially, the project studied the travellers' culture, taking stock of the educational provision already being made. The director also visited a number of schools with experience of travelling children, and account was taken of the various independent voluntary schools that have recently been established. Questionnaires were returned by approximately 100 schools with experience of travelling children, of which 25 were visited.

Very little is known about the performance, attainment, and even regularity of attendance of travelling children in schools, and information was gathered about these factors. Specific problems such as adaptation to school life, behavioural and socialisation difficulties, educational difficulties resulting from language and dialect, strengths and weaknesses in coping with the normal curriculum were also studied.

Methods which have proved successful in relating the parent to the life of the school and seem to have eased the children's transition into school life were examined. Teaching methods which have built upon the travelling child's own special culture and aptitudes were of special interest, and the specific characteristics and needs of the various constituent groups were investigated.

FINAL PUBLICATION

A report will be submitted to the Schools Council later in 1972 with a view to publication. This will include an account of the current situation; an outline of the project's strategy; an attempt to define and categorise the different groups of travellers; a collage of teachers views on the education of travelling children based on questionnaires and supplemented by written submissions and interviews; an account of the cultural background; a survey of good practice both within and outside the State system, including a summary of new projects, methods of organisation within the school and a summary of curriculum schemes, activities and materials found to be particularly relevant; and a number of recommendations as to what needs to be done.

FURTHER INFORMATION is available from the project director

The report when published will be available for reference in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

[R]

PARENTS AND TEACHERS: A PILOT STUDY (HC 05 03)

DIRECTORS: **Professor R. Pedley** and **P. Fordham**

LOCATION: School of Education and Department of Extra-Mural Studies, University of Southampton, Southampton SO9 5NH. **Telephone:** Southampton (0703)56331

DURATION: 1972–1973 **AGE RANGE:** 5–18 **GRANT:** £850

AREA OF INQUIRY

The project is concerned with the further development of a community committment to education and aims to study and to improve the relationships of parents and teachers in a number of environmental settings. It hopes to design and to develop strategies that will enable schools, through improving home-school co-operation, to meet more effectively the educational and social needs of pupils.

PROCEDURE

The pilot study will be carried out from October 1972 in four clusters of schools in the Southampton region, balanced so as to contain substantial urban middle class, urban working class, immigrant and rural populations respectively. Prior to the commencement of the pilot study, monitoring activities will locate current work and secure lines of co-operation with local authorities, parents' and teachers' associations. Information from the initial monitoring activities will be fed back to the schools and on the basis of this work will be developed involving at first parental and teacher discussion groups and later combined teacher - parent discussion groups. These will attempt to progress from provision of information, instruction and guidance to self-programming work. The pilot study will aim to provide a base line for the work and to monitor and evaluate the development of the work concurrently over a period of one academic year. The results of this first stage of the work could be available in written form in mid 1973. Further experimental work may be developed in the basis of these results.

FURTHER INFORMATION is available from the project directors or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

JUNE 1972

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R

EFFECT OF ENVIRONMENTAL AND SOCIAL FACTORS IN EDUCATIONAL ATTAINMENT (HC 07 01)

DIRECTOR: Mrs M.E. Ainsworth*

LOCATION: School of Education, The University of Manchester, Manchester M13 9PL.

DURATION: 1966–1971 **AGE RANGE:** 7–16 **GRANT:** £23,000

AREA OF INQUIRY

This is one of two projects from the Plowden Committee primary school samples. The project's brief was to followup the 2,000 subjects of the Manchester Survey for the Plowden Report through their secondary school careers. The main object was to identify the features of secondary school environment which were associated with attainment. It was also hoped that individual 'improvers' and 'deteriorators' could be identified and that environmental correlates of these conditions could be described. It was expected that the project would need to make a close study of schools and homes.

For information on the other Plowden 'follow-up' see sheet HC 05 01 Sample Survey of Parental Attitudes.

PROCEDURE

For purposes of comparison the research design was similar to that followed for the original Plowden survey. Data for a school-based study were collected from 53 secondary schools of all types, containing 1,544 pupils of the 2,000 in the original survey. From the original 186 pupils in the Plowden sample of individuals, 114 children in the same 53 schools were traced for a more intensive study of home background and pupils' attitudes to school.

Criteria measures for both analyses were scaled school examination marks in five subject areas – English, mathematics, sciences, social sciences and non-academic subjects – obtained in the first three years in the secondary school. A verbal general ability test constructed in the Faculty of Education at Manchester University was administered to 6,000 pupils in the 53 schools as an instrument against which to scale examinations marks. Data were also collected on external examinations taken at the age of sixteen-plus and the age at which each sample pupil left school.

Predictors for the schools analysis were obtained from questionnaires and interviews with head teachers and observational visits to the schools, for the school-based study. For the individual study data were collected from pupils and from their parents by means of interviews.

From the analysis of the data those aspects of home background and secondary school environment which relate most strongly with attainment and length of schooling have been assessed. The most conspicuous finding is that home background factors are not only the best predictors of attainment in both the primary and secondary schools, but that they are also the best predictors of the type of environment encountered in the secondary school. Statistical findings are supplemented by individual case studies where possible.

FINAL PUBLICATION

The report of this research will be published in the Schools Council Research Studies series by Macmillan Education in 1973.

RELEVANT PUBLICATIONS

Children and their Primary Schools: A report of the Central Advisory Council for Education (England) (The Plowden Report), HMSO, 166, 2 vols.

FURTHER INFORMATION

A copy of the report, when published, will be available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

*Mrs Ainsworth is now at Didsbury College of Education, Wilmslow Road, Manchester M20 8RR.

JUNE 1972

R

YOUTH SERVICE AND THE SCHOOLS (HC 14 01)

DIRECTOR: **Professor A.G. Joseiin** **RESEARCH OFFICER: Lady Ethel Venables**

LOCATION: Department of Education, University of Aston, Gosta Green, Birmingham 4.

DURATION: 1968–1969 **AGE RANGE:** 14+ **GRANT:** £4,500.

AREA OF INQUIRY

This one year study was established at the instigation of the Youth Service Development Council to obtain factual information:

1. about the relationships, similarities and differences between the roles of teachers and youth leaders
2. about the relationships between schools, further education and the community
3. to produce examples of working relationships at the school leaving age between the youth service and the schools.

The research was limited to a study of teachers and youth workers in Birmingham.

PROCEDURE

Teachers and youth workers in Birmingham were invited to participate in the research and about 200 attended three meetings. During these meetings they were asked to complete two questionnaires - one on role concepts and role expectations, i.e. how the two roles (youth worker and teacher) are perceived and the other involving a consideration of role identities and the *ideal* roles of the two groups.

As a result of these preliminary discussions, 122 of the original 200 returned on subsequent occasions for testing sessions lasting two to three hours. A number of inventories, questionnaires and self-relating scales were used in order to determine what sort of people the subjects were, with regard to their interests, personality, social attitudes etc.

Further to this, some 20 youth workers and 26 teachers met in four groups for six 90-minute discussion sessions, covering such topics as the actual and ideal role for each group; role pressures; the relationship between youth work and the schools. Finally, six schools were visited during the year and heads, school counsellors, youth workers,administrators, college lecturers and research workers were interviewed.

FINAL PUBLICATION

A research report has been published as *Teachers and Youth Workers: a study of their roles*, Schools Council Working Paper 32. In addition to details of procedure, an analysis of the results of the interviews, group discussions and questionnaires, and a long appendix with excerpts from the tape-recorded discussions, the report considers three central questions for the future: what have teachers and youth workers themselves to offer towards the clarification of their two roles? If teachers and youth workers are seen to serve two separate functions, does this mean that the two jobs call for two different kinds of people in terms of personality and attitudes? what in this research is relevant to the planning and future development of relationships between the two services?

RELEVANT PUBLICATIONS

Schools Council *Teachers and youth workers: a study of their roles* (Working Paper 32), Evans/Methuen Educational, 1971, 57p

Schools Council *Co-operation between the Youth Service and Schools* (Pamphlet 8), 1971. Free from the Schools Council. Reports from the Council's Field Officers on examples of current practice.

FURTHER INFORMATION

Copies of these documents are available for reference in the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

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JUNE 1972

R

RESOURCE CENTRES (OR 09 01)

DIRECTOR: D.J. Foskett **RESEARCH OFFICER:** N. Beswick

LOCATION: Institute of Education Library, University of London, 11–13 Ridgmount Street, London W.1. **Telephone:** 01-637 0846.

DURATION: 1970–1973 **AGE RANGE:** 9–18 **GRANT:** £18,000 (+£3,000 from NCET for a research assistant 1971/1972.

AREA OF INQUIRY

The proposal for this research project had its origin in the work of three of the Council's curriculum development projects: General Studies (HU 15 01), Keele Integrated Studies (HU 11 01) and Humanities Curriculum Project (HU 14 01). The learning methods advocated by these projects and the materials that they have been producing require the development of new methods and facilities for the storage of learning resources in school and for their retrieval and use. A great many schools and colleges had also been facing the problem of storing and retrieving multi-media materials.

The project was thus established to identify the various problems which face schools and authorities wishing to develop resource centres, and to determine what have so far been found to be the most suitable and practicable methods of solving them. Problems are also being considered for which no satisfactory solutions have yet been found, and special attention is being paid to systems of indexing, storage and retrieval.

The word 'resource' is here used to mean anything that may serve as an object of study by pupils and includes books, pictures, sound recordings, exhibits and specimens, maps, tables, duplicated sheets, pamphlets, press cuttings, films, film loops, transparencies and programmed texts. It may also include guides to study, such as work sheets and reading lists. The term resource centre is used to mean an indexed collection of resources equipped with a storage and retrieval system. Such a centre would normally include a library or be part of a library, and might be linked to or include reprographic and audio-visual facilities.

PROCEDURE

During the first year the research officer made a study of work in this field in this country and the USA. He visited schools, colleges of education and teachers' centres in this country where exploratory work is being undertaken, and has drawn upon the experience gained during a 14 month period teaching in a library-school in America prior to the start of the project. He has also made contact with LEA audio-visual-aids organisers, schools library services in country libraries etc. A special study of methods of storage, indexing and retrieval has been made.

In 1971 an extension was granted for a second and third year in which six schools already actively interested in resource collections, have been invited to co-operate in an experimental scheme to test and demonstrate different kinds of resource organisation and indexing. In each case, the retrieval needs of the school are being discussed in relation to the curriculum, the organisational pattern and the school's philosophy; a suitable indexing system is being devised which can be operated by the present staff of the school; as much as possible of the archive collection is being suitably and quickly indexed; and the effectiveness of the system is being studied in relation to the subsequent demands made upon it by teachers and pupils.

PUBLICATION

A first report has been published as *School Resource Centres* (Schools Council Working Paper 43). This report analyses the nature and problems of resouce centre provision, and pays special attention to indexing, storage and retrieval systems.

RELEVANT PAPERS AND PUBLICATIONS

N. Beswick, 'The Certain Standards in Context: A Study of the American School Library Materials Centre concept', *Journal of Librarianship*, Vol 2 No 3, July 1970.

N. Beswick, 'The multi-media library in some American schools', *Education Libraries Bulletin*, Winter 1970.

N. Beswick, Review of Library Association's 'School Library resource centres; recommended standards' in *Education Libraries Bulletin*, Spring 1971.

B.A.J. Winslade and N.W. Beswick, *Resource Centres*, an annotated bibliography, 1971. No 1 available free from the project or the College of Librarianship, Aberystwyth, Wales.

Schools Council, *School Resource Centres* (Working Paper 43), Evans/Methuen Educational, 1972.

A list of schools where resource centre work is in operation, a bibliography on libraries and resource centres, and a bibliography on co-ordinate indexing and optical coincidence cards are available from the project. Other lists are being prepared.

FURTHER INFORMATION is available from Mr Beswick or from the Schools Council Project

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The word 'resource' is here used to mean anything that may serve as an object of study by pupils and includes books, pictures, sound recordings, exhibits and specimens, maps, tables, duplicated sheets, pamphlets, press cuttings, films, film loops, transparencies and programmed texts. It may also include guides to study, such as work sheets and reading lists. The term resource centre is used to mean an indexed collection of resources equipped with a storage and retrieval system. Such a centre would normally include a library or be part of a library, and might be linked to or include reprographic and audio-visual facilities.

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A list of schools where resource centre work is in operation, a bibliography on libraries and resource centres, and a bibliography on co-ordinate indexing and optical coincidence cards are available from the project. Other lists are being prepared.

FURTHER INFORMATION is available from Mr Beswick or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

R

SCHOOL ORGANISATION AND PUPIL INVOLVEMENT (OR 11 01)

DIRECTOR: Dr R.A. King

LOCATION: Educational Organisation Research Unit, University of Exeter, Institute of Education, Gandy Street, Exeter. **Telephone:** Exeter (0392) 58390

DURATION: 1967–1970 **AGE RANGE:** 11–18 **GRANT:** £15,000

AREA OF INQUIRY

The research set out to consider three broad questions:

1. how do schools organise the behaviour and learning activities of their pupils? What are the differences in organisation between types of school, and how may they be explained?
2. to what extent and in what ways are pupils involved in the school? What differences are found in the levels and types of involvement of pupils of different ages, sex,ability, and social background, and how may they be explained?
3. to what extent and in what ways is the pupil's involvement in school related to the internal organisation of the school?

PROCEDURE

The results used to answer the questions were based on data obtained from two surveys:

1. the organisation of 72 schools from seven LEAs, representative of the national distribution by size, sex composition and status, was investigated using questionnaires, the analysis of documents, interviews and direct observations. The organisation of all the major pupil activities of the school was investigated and measured. These activities included the school assembly, school uniform, rewards and punishments, the house system and pastoral care, games and out-of-school activities, learning groups, careers' advice, the prefectorial system and school councils
2. 7,500 pupils of different ages, sex and ability, were surveyed from a sub-sample of 30 schools. Their involvement in different aspects of the school was measured using a number of specially constructed scales and also by the incidence of their joining school clubs, playing in school clubs, playing in school teams, and holding official positions.

FINAL PUBLICATION

The Schools Council did not exercise its option to publish a report of this research. A complete account appears in *School Organisation and Pupil Involvement: A Study of Secondary Schools,* by R.A. King, International Library of Sociology, Routledge and Kegan Paul, 1973 (Forthcoming).

RELEVANT PUBLICATIONS

R.A. King 'The Social Organisation of the School', *Higher Education Journal* 6, 1968
R.A. King and G. Easthope 'The Structure of Careers' Guidance in Secondary School', *The Vocational Aspect of Education,* 23, 1971
R.A. King and J.D. Fry 'School Magazines', *English in Education,* 6, 1972
R.A. King 'Parents and Schools', *Secondary Education,* 2, 1972
R.A. King and G. Easthope 'Social Class and Friendship Choice in School', *Research in Education* 1973 (Forthcoming).

FURTHER INFORMATION

Copies of all items listed above are available for reference in the Schools Council Project Information Centre, , 60 Great Portland Street, London W1N 6LL.

Further information is available from Dr King.

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JUNE 1972

R

CHANGE AND INNOVATION IN AN EXPANDING COMPREHENSIVE SCHOOL (OR 11 02)

DIRECTOR: **Miss Elizabeth Richardson**

LOCATION: School of Education, University of Bristol, Helen Wodehouse Building, 35 Berkeley Square, Bristol B58 1JA. **Telephone:** Bristol (0272) – 24161

DURATION: 1968–1971 **AGE RANGE:** 11–18 **GRANT:** £3,675

AREA OF INQUIRY

The project was planned as a result of the work which led to Miss Richardson's two books – *Group Study for Teachers* and *The Environment of Learning* – and is a study of the process by which the management and consultative structure of an expanding secondary school, and its academic and pastoral care organisation, change with a rapid increase in size and with decisions to implement major curriculum innovations.

It was hoped to learn something of:

1. the nature of authority and leadership in the school community
2. the stresses under which teachers and pupils at different levels of the organisational structure have to work in carrying out their tasks
3. the roles taken, both consciously and unconsciously, by different individuals and groups in the school
4. the difficulties encountered in implementing change – e.g. in introducing the curriculum, in reorganising the system of management within the institution.

PROCEDURE

The study was based on a school in Somerset which opened in 1959 with a three form grammar school entry, and as a result of reorganisation was joined in 1966 by a comprehensive intake. There are now over 1,100 pupils.

Since September 1968, Miss Richardson has been acting as a consultant to the headmaster and staff in a situation where innovations were already being proposed, discussed and implemented before Miss Richardson's arrival.

As the research progressed, it became increasingly involved with problems of authority at various levels. As a result of a larger and different kind of pupil intake and a wider ability range, a new system has had to be imposed upon an existing school, and this has brought implications for relationships within the school for changing roles and for modifying the structure of the school.

FINAL PUBLICATION

A detailed record of the two years' work has been made and discussed with the staff. The full research report will be published as *The Teacher, The Schools and the Task of Management* and the author is preparing a shorter working paper with a view to publication by the Schools Council.

RELEVANT PUBLICATIONS

Elizabeth Richardson, *Group Study for Teachers,* Routledge 1967
Elizabeth Richardson, *The Environment of Learning,* Nelson 1967
Elizabeth Richardson, 'The Staff Group and its problems of authority and shared responsibility, *the new era,* Vol 50, No 10, December 1969.

FURTHER INFORMATION

Details of these reports when published will be available from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

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JUNE 1972

R

TEAM TEACHING IN INTEGRATED STUDIES (OR 11 03)

DIRECTOR: Miss P.M. Logan

LOCATION: Henbury Comprehensive School, Marissal Road, Bristol. **Telephone:** 0272 62–2891

DURATION: 1971–1972 **AGE RANGE:** 11–13 **GRANT:** £5.250 (+£2,250 from Bristol LEA)

AREA OF INQUIRY

For the past four years a team of sixteen teachers at Henbury School has been doing integrated studies in history, geography and religious education in up to twenty mixed ability groups in the first two years of school. The work has been planned by the whole team and about one fifth of the teaching time has been devoted to lead lessons for all pupils; the rest of the time has been spent in follow-up teaching groups. During the four terms of this project one team member has been withdrawn from teaching duties to prepare a report on the ideas and methods developed by the team and to develop further the integrating concepts and methods used.

PREVIOUS WORK

The aim of the team has been to create in the pupils a lively awareness of their total environment. This has been done by retaining the fundamental concepts of the separate disciplines but presenting them without the isolating constraints of subject barriers. The team has emphasised the need for pupils to take some responsibility for their own learning, and has attempted to build a degree of flexibility into the programme so that it is suitable for the individual needs of all pupils. To this end there has been much encouragement of co-operative work in small groups.

FINAL REPORT

The report will be submitted to the Council at the end of the project and will be concerned with:

1. a discussion of integrated studies work showing how pupils learn through this approach, how the separate disciplines contribute to the whole, and the degrees of success achieved with the various methods and materials used
2. the ways of ensuring co-operative development through a *team* of teachers and the implications these have for school organisation
3. the development of a small school resources centre, with particular reference to the type of material which can be produced internally.

FURTHER INFORMATION is available from Miss Logan at Henbury School, or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

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[R]

PLANNING OF COURSES (OR 13 01)

DIRECTOR: **Professor P.H. Taylor**

LOCATION: School of Education, University of Birmingham, P.O. Box 363, Birmingham 15.
Telephone: Birmingham (021)–472 1301

DURATION: 1967–1969 **AGE RANGE:** 13–16 **GRANT:** £2,835

AREA OF INQUIRY

This small-scale enquiry was established in 1967 to explore the terms in which teachers thought about curriculum planning, what criteria of construction they employed, how frequently they were involved in planning and with whom, and to illuminate how they perceived the elements of curriculum planning to be related.

PROCEDURE

The studies were carried out in two local authority areas, a large city authority and a part-rural part-urban area over a two year period. They concentrated on secondary schools concerned with pupils of average and below average ability and were confined to three subject areas – English, science and geography.

Five techniques were used –

1. open and undirected discussion with two separate groups of teachers in each of the three subject areas. (Eight teachers were nominated by each LEA in each subject area)
2. an analysis of syllabuses used in the three subjects in relevant types of school
3. a rating scale aimed to discover how teachers put together their ideas about planning and what emphasis they give to different parts of the process
4. a questionnaire for teachers based on numbers 1 and 2
5. a questionnaire on pupil perception of course objectives.

Points that emerged from the analysis of data collected include the prominence of the pupil, and his needs, abilities and interests as a factor in planning; the teacher's concern with subject matter, aims and to a lesser extent teaching methods; the emergence of evaluation as the concept in planning which teachers seem least to value or implement; teachers' lack of concern with the relation between their subjects and other subjects and to the curriculum as a whole. On the whole, many teachers seemed to have a rather unsystematic approach to planning.

PUBLICATION

A report of the research was published by the National Foundation for Educational Research entitled *How teachers plan their courses* by Philip H. Taylor, 1970, £1.50.

FURTHER INFORMATION

This report is available for reference in the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

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R

CSE MONITORING PROCEDURES (EX 14 01)

DIRECTOR: Dr L.S. Skurnik *

LOCATION: National Foundation for Educational Research, The Mere, Upton Park, Slough, Bucks. **Telephone:** Slough (75) 28161

DURATION: 1964–1969 **AGE RANGE:** 14–16 **GRANT:** £133,556

AREA OF INQUIRY

In England and Wales, the assessment of attainment at the age of 16 is divided between two systems of examinations: the Certificate of Secondary Education (CSE) and the ordinary level of the General Certificate of Education (GCE). There are 14 Boards offering examinations for the CSE and eight for the GCE.

Subject by subject there is a great variety of alternative syllabuses and of techniques of examining. There are also three *modes* of CSE – Mode 1: external syllabuses and papers set and marked by the examinations boards; Mode 2: similar examinations conducted on syllabuses proposed by individual schools or groups of schools; Mode 3: examinations set and marked by schools themselves, subject to the moderation of standards by the examining boards.

Since 1965 when the first nine boards started their operations, it has been the responsibility of the Schools Council to ensure comparability of grading standards among the fourteen boards. In addition since CSE grade 1 was defined to be comparable to an O-level pass, comparability between the CSE boards and the eight GCE boards was of concern.

Thus in 1964, the Schools Council commissioned the Examinations and Tests Research Unit of the NFER to investigate the degree of comparability in grading standards among the CSE boards and between the CSE and GCE boards. The CSE boards' actual results, collectively and individually, were also to be related to the guidance of standards given in the seventh report of the former Secondary School Examinations Council, *Scope and Standards of the CSE*.

PROCEDURE

The main method, adopted in four consecutive years involved the use of a general scholastic aptitude test which was administered to CSE and GCE O-level candidates in a sample of schools in each of the boards' areas shortly before the examination. This reference test was used as a common yardstick against which the grading standards of the different boards were assessed. The use of this particular experimental design, as opposed to attainment tests, cross-moderation or item-banking, is discussed in the reports of the four years' experiments.

SUMMARY OF RESEARCH RESULTS

Details of the published reports are given in the following section.

1965. As only nine of the fourteen boards had begun operations, no final conclusions could be drawn.

1966. Two boards were seen to be consistently out of line with their peers in their grading standards, one on the side of severity, the other of lenity. This pattern was seen in all six subjects monitored (English, mathematics, geography, history, French and science) and was confirmed in English and mathematics using attainment tests as additional monitoring instruments, and again in English by a cross-marking experiment. In general, however, it appeared that the majority of boards were awarding grades of a common standard and that the CSE grade 1/GCE O-level pass overlap was about right.

1967. The overall standards had remained much the same as in 1966, and there was growing agreement among the boards about their mean grade standards.

1968. In the light of the previous studies, only in four cases out of seventy considered, did the mean grade standards appear to be too lenient. There were no cases of marked severity. A review of the trend of the mean grade standard of all boards over the period 1966–1968 indicated that there may be a slight but significant trend towards lenity in English, geography and French. Evidence also suggested that the CSE boards overall awarded a grade 1 to about the correct proportion in comparison with the pass standard at GCE O-level. A further study using two attainment tests in two pairs of boards convincingly validated the results of the main aptitude test study at both the mean grade and grade 1 levels.

RELEVANT PUBLICATIONS

Scope and standard of the Certificate of Secondary Education, 7th report of the Secondary School Examinations Council, HMSO 1963, 10p

Schools Council *The 1965 CSE Monitoring Experiment* (Working Paper 6 parts 1 and 2) HMSO, 1966, 45p

L.S. Skurnik and J. Hall *The 1966 CSE Monitoring Experiment* (Schools Council Working Paper 21), HMSO, 1969, 42½p

L.S. Skurnik and I.M. Connaughton *The 1967 CSE Monitoring Experiment* (Schools Council Working Paper 30), Evans/Methuen Educational, 1970 21p

D.L. Nuttall *The 1968 CSE Monitoring Experiment* (Schools Council Working Paper 34), Evans/Methuen Educational 1971, 42p.

FURTHER INFORMATION

These publications are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

*Dr Skurnik is no longer at the NFER.

R

GROUP RESEARCH IN TECHNIQUES OF EXAMINING FOR USE IN CSE EXAMINATIONS (EX 14 02)

DIRECTOR: Dr W.G.A. Rudd

LOCATION: School of Education, The University, Manchester M13 9PL
Telephone: Manchester (061)-273 3333

DURATION: 1964–1968 (Schools Council support from 1965) **AGE RANGE:** 14–16
GRANT: £1750 (+ £750 from DES, £250 from ALSEB, £750 from NWSSEB)

AREA OF INQUIRY

The project was initiated by the University of Manchester School of Education, following a similar exercise with GCE O-level. Based upon a belief that a secondary school examination which aims to avoid harmful backwash effects upon teaching should, as far as possible, develop from the experience of outstanding secondary school teachers, an exercise in group research and development was established. Five teams, each of about twenty-five members including two-thirds practising teachers, were set up in the subject areas English, French, mathematics, music and art.

FINAL REPORT

A report of the project was published as Schools Council Examination Bulletin 20: *CSE: a group study approach to research and development* and a summary of its findings are as follows:-

English. As an aid to identifying abilities being assessed through its tests of oral and written expression, the English panel administered a battery of forty-four reference tests. Evidence from these suggested that skill in oral expression is sufficiently different from skill in written expression to merit separate assessment in an achievement examination. Also interesting was the finding that oral tests yield a better prediction of originality than do written expression tests.

French. Emphasising the desirability of testing one language skill at a time, the French panel concluded that reliability of oral examining may be improved through use of detailed, analytical marking schemes and of standardised sample recordings of tests, and by training teachers as examiners. This report also describes an entirely objective test of aural comprehension, one which has no visual elements and which eliminates self-expression.

Art. Using a combination of objective, essay and graphical items, and dealing with topics ranging from chairs and shop fronts to pictures and sculpture, the art panel devised and tried out a three-hour test of appreciation which genuinely interested pupils and revealed in some of them a highly-developed sensitivity towards aesthetic problems. This panel also researched into problems arising when groups of examiners mark exhibitions of pupils' work, using general impression methods.

Mathematics. The mathematics panel set out to devise an examination which would provide opportunities for candidates to display all the imagination, intuition, judgement and reasoning power which liberal teaching would foster. Its experimental evidence favours some combination of objective and conventional-type questions for CSE examinations. Although no sex differences in mean scores for general ability were found for the sample of pupils tested, boys gained a significantly higher mean score than did girls in the experimental tests of mathematics. Mean scores for pupils from co-educational schools were significantly higher than were those for pupils from single-sex schools.

Music. The music panel aimed to encourage practical music making even when the pressures of examinations exert themselves most powerfully. Its experiments suggest that corporate music making does lend itself to individual testing, even when schools are given freedom both in the selection of music and in the composition of ensembles. This panel's report also includes details of experimental tests of appreciation and of musical experience. An analysis of test results shows a strong link between achievement and interest in music, even where pupils' general ability and social status are not high.

The Examinations Bulletin includes discussion of the side effects of teachers researching with other educationists, and appends lists of participating teachers and schools, and copies of the tests used by the subject panels.

RELEVANT PAPERS AND PUBLICATIONS

The Certificate of Secondary Education: some suggestions for Teachers and Examiners (Examinations Bulletin 1), HMSO 1963, 50p

Schools Council *CSE: A group study approach to research and development* (Examinations Bulletin 20), Evans/Methuen Educational, 1970 £1.58.

FURTHER INFORMATION

These publications are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

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JUNE 1972

R

ITEM BANK PROJECT (EX 14 03)

DIRECTORS: **Mr R Wood** * and **Dr L.S. Skurnik** *

LOCATION: National Foundation for Educational Research, The Mere, Upton Park, Slough, Bucks. **Telephone:** Slough (75) 28161

DURATION: 1966–1968 **AGE RANGE:** 14–16 **GRANT:** £10,500

AREA OF INQUIRY

In July 1966, the Schools Council asked the National Foundation for Educational Research to carry out a pilot study into the feasibility of establishing Banks or Libraries of examination questions or items suitable for measuring the achievements of 16 year-olds taking CSE examinations.

The objectives of item banking can be summarised as follows:

1. to provide examiners with more objective information about the characteristics of the examinations they are using, and thereby improve the chances of securing comparability of standards, between and within CSE regional boards
2. to build up libraries of first-class examination questions or items which can be put at the disposal of examinations boards and teachers wishing to set school-based examinations
3. to familiarise more teachers with the ideas of modern examining, particularly the notion that an examination should be devised on the basis of a blueprint, a document which codifies in detail the student attributes or behaviours which the examiner wishes to evaluate and also the subject matter which is thought conducive to the achievement of these objectives
4. to develop classifications of achievement which are universally applicable so that teachers become more aware of what it is they are testing and why, and also so that CSE grades can be made to have more substance and meaning
5. to detect and train item-writing talent so that item banks may be stocked with items of the best quality.

PROCEDURE

Eight (later six) schools from the southern sub-section of the East Anglian CSE regional participated in the project. Initially the mathematics teachers in these schools were asked to write specifications or blueprints for a CSE examination: these blueprints were amalgamated into a composite version, sufficient items were collected for this and the items were tested on a sample of CSE candidates. Items surviving the testing and a final pruning, were sent to the original teachers with the request that they should choose a purpose-built test of 40 items to serve as a short alternative CSE examination, and administer this to their CSE candidates.

From the results of these tests a relationship between scores and CSE grades was derived. Thus anyone drawing a test from the bank could be told the sequence of mean scores on the test which the candidates he allocates to certain grades should obtain, in order that the grades he awards should be nationally comparable.

FINAL REPORT

A full report on this experiment was published as *Item Banking,* R.Wood and L.S. Skurnik, NFER, 1969. £2.25. A shorter, more 'popular' version of the report entitled *Question Banks: their use in school examinations* has been published as Schools Council Examinations Bulletin 22 Evans/Methuen Educational 1971 22p.

FURTHER INFORMATION

These publications are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

* Mr Wood and Dr Skurnik are no longer at the NFER. Mr Wood is now with the London Examinations Research Unit.

JUNE 1972

R

EXPERIMENTAL SCHEME OF SCHOOL ASSESSMENT IN ENGLISH LANGUAGE (ORDINARY LEVEL) (EX 14 04)

PROJECT SUPERVISER: E.A. Hewitt, Durham University **DIRECTOR:** G.M. Forrest

LOCATION: Research Unit, Joint Matriculation Board, Manchester M15 6EU
Telephone: Manchester (061)-273 2565

DURATION: 1964–1972 (Schools Council support since 1968 **AGE RANGE:** 14–16
GRANT: £8,118 (+ £5,000 from the DES)

AREA OF INQUIRY

In December 1963, the Ministry of Education granted £5,000 over a period of three years in support of two research projects relating to the examining of English language at Ordinary level: one on the reliability of the present form of O-level English examinations, and one on the assessment of English at O-level. The first of these projects, covering the exams of 1965, 1966 and 1967, was completed in 1967 and a report by E.A. Hewitt entitled *The Reliability of GCE O-level examinations in English Language* was published by the JMB in 1967.

The second of these was extended, with financial support from the Schools Council, to include the exams of 1968, 1969 and 1970. The main objective of the research is to evolve a method or methods by which the school will assess the ability of its pupils to write with facility, clarity and accuracy; to understand what is read; to use vocabulary appropriate to an O-level candidate's age, experience and needs; to construct and join sentences and paragraphs; and to avoid mistakes of punctuation, grammer, spelling and idiom. On the basis of the school's assessments the examining board issues a GCE certificate.

PROCEDURE

Although 'Mode 3' examining, (in which syllabus and question papers are devised by the staff of an individual school and the papers are assessed by the teachers) has always been a feature of CSE examining, this experiment scheme, based on externally moderated school assessments of written work done in the final year of the Ordinary level course, is one of the first to be undertaken by a GCE Board. Candidates are assessed on continuous written work on assignments set by teachers throughout the year. These assignments arise directly from teaching, reading, classwork and discussion and are designed to give candidates an opportunity to demonstrate the ability to write relevantly on a variety of types of assignments and to show some evidence of creativity and originality in response to written and other material. At the end of the year, each candidate is assessed by his own teacher on the standard he has reached by the end of the course. Formal examinations play no part in deciding the grades to be awarded.

In order to establish comparability between schools, teachers involved in the experiment meet for two years prior to the examination to participate in group trial markings of specimen assignments and discussions of standards and criteria. Selected samples of work for 25 candidates from each school are sent to a teacher from another school who acts as moderator. The work of candidates who are on the pass/fail borderline is submitted to a second moderator who also deals with any disagreements between the school and the first moderator. In future it is planned to set up a review panel which would establish comparability across groups and between schools, assess borderline cases, and allocate grades to individual schools.

The number of candidates taking part in this experimental scheme has risen from 479 (10 schools) in 1965 to 2,557 (34 schools) in 1969, the majority of these being in the West Riding of Yorkshire. In 1970 the scheme was extended to include other schools in the north-east and in Manchester, Liverpool and Birmingham the number of candidates to be assessed in this way in 1971 was 6,000. The pass rate has varied between 91% in 1969 and 94% in 1967.

REPORTS

Three interim reports have been published:

E.A. Hewitt and D.I. Gordon *English Language: an experiment in school assessing* (first interim report), Joint Matriculation Board 1965

J.A. Petch *English Language: an experiment in assessing* (second interim report), Joint Matriculation Board 1967

An experimental scheme of school assessment in Ordinary level English language (third interim report), Joint Matriculation Board 1970.

All these are available on request from the JMB.

It is likely that a final report will be published late in 1972 by which time a decision will have been taken as to whether or not to offer this scheme to all schools wishing to take advantage of it.

RELEVANT PAPERS

Anthony J. Pike 'The Assessment of English Language for O-level, *The Use of English*, Vol 22 No 3, Spring 1971

Richard Christopher 'The prospect for examinations' *Dialogue* 10, Spring 1972.

FURTHER INFORMATION

Further information is available from Mr Forrest at the JMB.

Copies of all papers listed above are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

F

CSE: A FILM ON THE CERTIFICATE OF SECONDARY EDUCATION (EX 14 05)

SHOT DURING: 1969/1970 **AGE RANGE:** 14–16+ **GRANT:** £370 (+ £370 from the East Midland Regional Examining Board)

The film is designed principally for an audience of parents, employers and schools, and emphasises the teachers' control of the examination, the part played by course work and an interpretation of grades.

FILM DETAILS

The film was commissioned by the East Midland Regional Examining Board with a contribution of £370 from the Schools Council, and was made by an industrial film production unit in Nottingham.

It is in 16mm, black and white and runs for 20 minutes.

Copies of the film are available on loan, free of charge, from the East Midland Regional Examinations Board, Robins Wood House, Robins Wood Road, Aspley, Nottingham. (Telephone: Nottingham (0602) 293291).

The film may be seen by appointment at the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL. *This copy may not be loaned.*

R

PREDICTIVE VALUE OF CSE GRADES FOR FURTHER EDUCATION (EX 14 06)

DIRECTOR: I.C. Williams * **PROJECT DIRECTOR:** N.C. Boreham *

LOCATION: Thurrock Technical College, Woodview, Grays, Essex.

DURATION: 1969–1971 **AGE RANGE:** 14–16+ **GRANT:** £3,220

AREA OF INQUIRY

The purpose of this research project was to investigate the value placed on CSE Grades below Grade 1 by colleges of further education in relation to the entrance qualifications for courses not requiring GCE O-level, or CSE Grade 1.

PROCEDURE

The method employed was to compare students' performance in the CSE examinations with their subsequent performance in further education. CSE subjects were investigated as possible predictors in two ways: each subject as a single predictive measure, and combinations of two subjects as multiple predictors. The subjects chosen for investigation were those taken by the greatest number of students. The overall aim was to identify the best predictors for each further education course; the courses chosen for investigation were mechanical engineering technicans, electrical technicans, general course in engineering, basic engineering, craft studies, general catering, ladies hairdressing, shorthand typists' certificate and secretarial duties. The sample took 5000 students who had taken CSE while at school and who entered colleges of further education during the sessions 1968/69 and 1969/70 to study the courses above.

FINAL PUBLICATION

A report has been published as Schools Council Examinations Bulletin 24 *The predictive value of CSE grades for further education.* Whilst showing that CSE can provide additional information for allocating students to further education courses, the authors confirm the prescience of the Beloe report in thinking it important that 'ways should be left open for those who are not able to show their quality in terms of school examination results'. In all but one of the eight courses, it was found that college performance could have been predicted, but students with low CSE grades possessed a high chance of success on a number of the further education courses investigated.

RELEVANT PUBLICATIONS

Secondary School Examination other than the GCE (The Beloe Report) HMSO, 1966

Schools Council *The predictive values of CSE grade for further education* (Examinations Bulletin 24), Evans/Methuen Educational 1972, 65p.

FURTHER INFORMATION

Items listed above are available for reference in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

* Mr Williams has now retired. Mr Boreham is Research Officer at the East Anglian Examinations Board.

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JUNE 1972

R/X

STANDARDISED BATTERY OF TESTS OF BASIC PROFICIENCY IN FRENCH (EX 14 07)

DIRECTOR: T.S. Percival

LOCATION: Department of Education, University of Manchester, Manchester M13 9PL.
Telephone: Manchester (061)-273 3333

DURATION: 1970–1973 **AGE RANGE:** 14–16 **GRANT:** £5,000

AREA OF INQUIRY

This project was established to develop a battery of French tests suitable for assessing basic proficiency in listening, speaking, reading, and writing. The battery was standardised on a sample of pupils preparing for GCE and CSE, in their fourth year of study in secondary schools. It is intended that the tests should be for internal use in schools or other establishments, by teachers and learners of the language.

The tests are intended to provide:

1. a measure for use in teaching and research
2. a means of constructing a pupil's profile of proficiency in the four skills by use of a nine point scale
3. a point of reference for teachers by the development of norms based on a defined population
4. a measure of overlap between GCE and CSE
5. objective evidence of proficiency which might be useful, for example, to teachers in discussion with pupils and parents.

The test materials are based mainly on the principles of frequency and utility as established by the findings of the Centre de Recherche et d'Etude pour la Diffusion du Francais (CREDIF).

PROCEDURE

The project director has been concerned with the construction of standardised tests over a period of twenty years and a pilot experiment with some 1,000 pupils in the Manchester area was undertaken before the project officially started. This involved the construction and small scale standardising of a French listening test developed for use in a classroom, in a language laboratory, or by a student working on his own. The construction of four tests was planned:

Listening Test. About 50 items, including taped questions, remarks, extracts from conversations, with multiple choice printed and picture responses.

Reading Test 50–60 items, including single sentences and extracts, and making use of multiple choice and matching techniques.

Writing Test. The test is likely to consist of a closely controlled first part, using completion techniques, with a second part for freer response.

Speaking Test. Tests in pronunciation, questions on pictures, and a series of pictures as a basis for pupils to talk. The possibility of constructing the test entirely on tape will be explored, so that it may be self-administered.

It is intended that each test should be suitable for administration within a normal school period. Objective techniques were used as far as practicable, and final choice of techniques was based on a compromise between apparent validity, likely acceptability to teachers and pupils, suitability for testing a particular point, item time/efficiency ratio and power of discrimination.

Objective tests in listening, reading and writing were administered during the summer term of 1972, after earlier pre-testing and analysis of results. They are being marked and will subsequently be analysed. The speaking test and the free section of the writing test have been unavoidably delayed.

FINAL PUBLICATION

It is hoped that the tests and an accompanying manual will be published in due course.

RELEVANT PUBLICATIONS

The Certificate of Secondary Education: an introduction to some techniques of examining (Exam. Bulletin 3) HMSO, 1964

The Certificate of Secondary Education: an introduction to objective-type examinations (Exam. Bulletin 4) HMSO, 1964

R. Lado *Language Testing* Longmans, £1.75

R.M. Valette *Modern Language Testing* Harcourt, Brace and World

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N. Brooks *Language and Language Learning* Harcourt, Brace and World (Ref. Chapter 15)
W.M. Rivers *Teaching Foreign Language Skills* Univ. of Chicago Press 1969, £3.37½ (Ref. Chapter 12)
W.F. Mackey *Language Teaching Analysis* Longmans (Ref. Chapter 16)
MLA-Cooperative Foreign Language Tests in French, German, Italian, Russian and Spanish
Modern Languages: Teaching and Testing. Filmstrip and work kit developed by the Modern Language Association of America and the Co-operative Test Division, Educational Testing Service, Box 999, Princeton, New Jersey 08540.

The results of early work carried out in this field by the director of the project are described in (a) *Modern Languages* Vol XXXII No 2, (b) *The British Journal of Educational Psycology* Vol XXI pp 156–158.

The tests were published as 'Standardised French Tests' T.S. Percival ULP 1951.

There is an extensive range of works on measurement theory and in the field of linguistics which impinge on this work. Fuller bibliographies are available from the Centre for Information on Language Teaching, State House, 62 High Holborn, London WC1R 4TN.

FURTHER INFORMATION from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

R

RESEARCH INTO CSE AND SIXTEEN PLUS EXAMINATIONS (EX 15 01)

DIRECTOR: Dr D.L. Nuttall

LOCATION: Examinations and Tests Research Unit, National Foundation for Educational Research, The Mere, Upton Park, Slough, Bucks. **Telephone:** Slough (75) 28161

DURATION: 1969–1974 **AGE RANGE:** 15–16+ **GRANT:** £102,100

AREA OF INQUIRY

Previous research into the Certificate of Secondary Education undertaken by the NFER on behalf of the Schools Council has aimed to inspect and report the degree of comparability of grade standards between CSE boards, and the extent of overlap between the CSE and GCE grades (see EX 14 01 Monitoring Procedures for CSE). The aim of this study is to improve the quality and quantity of information available about the Certificate of Secondary Education examinations. In particular:

1. to describe the various schemes of continuous assessment in present use by teachers under Mode III, and to evaluate the validity, reliability and comparability of one or two of the more popular schemes
2. to assess the degree of content validity of a number of CSE examinations and to present a method of achieving this validity through a systematic planning and construction of examinations
3. to investigate some technical problems in the field of educational measurement
4. to explore some problems concerned with the feasibility and development of a common system of examining at 16+.

PROCEDURE

The study has been divided into four main sections:

The Reliability and Item Analysis Study is geared to giving an indication of how reliable the written examinations papers are and how each question works in practice – how difficult it is, how well the markers spread the marks and how effectively the question discriminates between the candidates who did well on the whole examination and those who did less well. Each CSE board provides the NFER with a sample of marked scripts and details of mark schemes in specific subject areas, and the marks are coded and analysed by computer. The results are returned to the boards.

Continuous Assessment Study. Increasing numbers of CSE examinations consist either in whole or in part of an assessment of the candidate's abilities by his teacher of a longish period, usually the whole of the fifth year of secondary education. At present, there appears to be little information about the details of schemes used, or of their reliability, validity or comparability with other types of assessment. The aim of the Continuous Assessment Study is to survey the literature and to investigate current practices among the boards and among a small sample of schools. The Unit has mounted a comparability study between different methods of assessment in each of a number of subjects, with the co-operation of one board where several different techniques all enjoy a wide use.

The Content Validity Study is concerned with the planning of examinations. Materials are being prepared which aim to help subject panels to be more specific about what their examinations are trying to assess. It is hoped this will lead to the construction of examinations according to prepared 'blue-prints', which will specify not only the content of the examinations but also the emphasis to be given to behaviours such as recalling facts and carrying out calculations, and understanding principles.

Weighting of Examinations Sections. Results of the Reliability and Item Analysis Studies in 1969 and 1970 have indicated a number of cases where the planned weighting of the various sections or parts of an examination has not coincided with that achieved in practice. In general, the differences have been small (of the order of 2 or 3 per cent) but in some cases the differences have been of the order of 10 per cent (e.g. the planned weight for a project was 25 per cent and the actual weight was 38 per cent). The problem arises as a result of differences between the spread of scores within the various sections. The aims of the Weighting Study are to alert boards to the problems of weighting, to discuss the educational rationale for the planned weights with a sample of subject panels, and to suggest possible statistical techniques for the achievement of the planned section weightings within the examinations.

The studies above are largely completed and reports are expected early in 1973. The emphasis is currently on studies undertaken in connection with the proposed single system of examining at 16+, and in particular:

1. an investigation of the range of ability of candidates currently entering for CSE and GCE O-level

2. an assessment of the degree of comparability of grade standards between subjects, years and modes of examining, including continuous assessment

3. an investigation of some technical problems in educational measurement, including question banking, sample-free item analysis and objective testing.

FINAL REPORT

Research reports covering the first four areas above will be submitted to the Council early in 1973 with a view to publication.

RELEVANT PAPERS AND PUBLICATIONS

Schools Council *The 1965 CSE Monitoring Experiment* (Working Paper 3) HMSO, 1966, 45p
Schools Council *The 1966 CSE Monitoring Experiment* (Working Paper 21), HMSO, 1969, 42½p
Schools Council *The 1967 CSE Monitoring Experiment* (Working Paper 30) Evans/Methuen Educational 1970, 21p
Schools Council *The 1968 CSE Monitoring Experiment* (Working Paper 34) Evans/Methuen Educational 1971, 42p
D.L. Nuttall & A.S. Willmott *British Examinations: Techniques of Analysis*, NFER, 1972, £2.10
A.S. Willmott & D.L. Nuttall *Aspects of Choice Examinations* to be published by NFER, late 1972.

FURTHER INFORMATION is available from the project director, or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

R

GCE EXAMINING AT ORDINARY LEVEL (EX 15 02)

DIRECTOR: A.S. Willmott

LOCATION: National Foundation for Educational Research, The Mere, Upton Park, Slough, Bucks. **Telephone:** Slough (75) 28161

DURATION: 1970–1973 **AGE RANGE:** 15–16+ **GRANT:** £45,000

AREA OF INQUIRY

The Schools Council report *Examining at 16+* which was concerned with the relationship between the examinations for CSE and GCE O-level, recommended a programme of research which would seek to increase the knowledge of those characteristics of the two examinations which are relevant to the design of grading systems or other methods of describing calibre of performance, with particular reference to the levels of reliability and validity of the examinations. Since the NFER had already been commissioned to carry out such research into CSE examinations (EX 15 01) it seemed that concurrent research into GCE O-level would be profitable.

The project aims:

1. to investigate the reliability and validity of the current GCE O-level examinations with particular reference to the effect of allowing candidates a choice of questions
2. to assist examination constructors to think critically about their methods of examining, and in addition to act in a general consultative capacity, working with the Boards, as required.

Many General Certificate of Education Boards have their own research staff, and contact is being maintained with them so that unnecessary duplication of effort is avoided.

PROCEDURE

The project is concentrating on studies dealing with various aspects of the reliability and validity of GCE O-level examinations. Work is only now underway on the reliability of these examinations mainly because the presence of question choice invalidates most traditional methods and formulae. It is possible to consider the combinations of questions chosen within papers however, and then to apply traditional methods for calculating reliability. Preliminary evidence has suggested that the questions chosen by a candidate may crucially affect his final grade, and that certain combinations of questions which prove to be more attractive than others, are not necessarily tacked by the higher scoring students.

The work on the validity of the GCE examinations will be restricted to that of content validity and will be centred on the subject panels of individual Boards. The aim will be to get the examination constructors thinking critically (i.e. in terms of educational objectives) of their methods of examining. By combining the evidence of the 'combination' analyses, and the validity studies it is hoped to see whether the content of a question – in terms of objectives – is systematically related to its difficulty, to the extent to which it discriminates among pupils, and whether the most popular combinations of questions are largely those requiring, say, only factual recall.

The second aim of the project, namely to help the examination constructors to think critically of what they are doing, is seen to be achieved mainly as a by-product of the main analyses mentioned above.

Finally, a brief study into the relative popularity of certain subjects, given the total number of subjects attempted, is being undertaken. This work is being carried out on data for which the GCE and CSE projects are investigating, from alternative standpoints, comparability between subjects – thus are some subjects 'easier' than others?

FINAL REPORT

A research report will be prepared in due course.

RELEVANT PUBLICATIONS

Schools Council *Examining at 16+* HMSO 1966, 12½p
D.L. Nuttall and A.S. Willmott *British Examinations: Techniques of Analysis*, NFER 1972, £2.10
A.S. Willmott and D.L. Nuttall *Aspects of Choice Examinations*. To be published by the NFER, late 1972.
A report on Subject Comparability, written in conjunction with the CSE project and J.K. Backhouse, is in preparation and will be submitted to the Schools Council late in 1972.

FURTHER INFORMATION is available from the project director, or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

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R

SIXTH FORM SURVEY (EX 16 01)

DIRECTOR: Miss R. Morton-Williams

LOCATION: Office of Population Censuses and Surveys, Atlantic House, Holborn Viaduct, London EC1. **Telephone:** 01-583 8937

DURATION: 1966–1970 **AGE RANGE:** 16–20 **GRANT:** Nil *

AREA OF INQUIRY

The proposal for a research project arose from a concern over ways in which sixth forms might best develop to meet the needs of the increasing numbers of pupils staying on at school. The survey set out to discover:

1. what types of full-time courses 16–19 year olds were taking in both school sixth forms and colleges of further education and the objectives sixth form pupils and teachers were aiming to achieve
2. what kind of pupil (in terms of educational and social backgrounds and future aspirations) was taking each course
3. the attitudes towards their courses of sixth form teachers and pupils and of students in further education.

It was estimated that, at the time of the inquiry, of the total population in the 16 to 18 year age group, 11% were in school sixth forms, while 4% were taking full-time non-advanced courses in the further education system.

PROCEDURE

The survey was carried out in three phases.

Phase 1. Sixth form pupils, sixth form teachers and heads were interviewed during the Spring of 1967. A sixth form pupil was defined as a pupil in the sixth form or equivalent of secondary school or in his sixth or subsequent year of secondary education (or the equivalent year, if his secondary education started other than at the age of 11). The survey consisted of interviews with 4,377 pupils, 153 heads and 1,149 teachers from a random sample of 154 schools, including independent, direct grant, grammar, technical, and comprehensive. Secondary modern schools were excluded because only 3.1% of pupils aged 16 or over were in secondary modern schools and these were scattered through many sixth forms.

The results of phase 1 of the Survey have been published as *Schools Council Sixth Form Survey: Volume 1: Sixth Form Pupils and Teachers.*
Information obtained includes pupils' attitudes to the sixth form and to their sixth form courses, including impressions of the sixth form, what they saw as objectives of sixth form education and their satisfaction with school provision, and preparation for careers.

Teachers' views about sixth formers are also included, with details of what in their view are the benefits and objectives of sixth form education and sixth form subject teaching. Sections are also included on sixth formers who were not aiming at university entrance, and on specialisation and arts/science differences.

The survey found that about 40% of sixth formers were not planning to go to university, and yet courses being taken by these pupils tended to be based on O- and A-level work. 30% of sixth formers were taking 2 A-levels, 45% 3 or more A-levels, and 90% were planning to obtain further qualifications of some kind. Many teachers favoured broader courses, half suggesting courses with a vocational or practical application; three quarters of the teachers considered some pupils would be better suited to courses other than A-level. There was little agreement among sixth formers on the degree of specialisation desirable.

General characteristics of the sixth form included better staff-pupil relationships, and increased freedom and independence.

Phase 2A consisted of interviews conducted in 1968 with 4,540 full time students on non-advanced courses in 131 colleges of further education. The results have been published as *Schools Council Sixth Form Survey: Volume II: Students in Full-time courses in Colleges of Further Education.* This report contains information gathered on the background and aspirations of students; examinations taken at school and courses and examinations at college; students' opinions on colleges, general or liberal studies, private study, careers and career advice; and characteristics of the students' parents.

More than half of the students in the sample were girls, and 94% of all students were on full-time courses of a year or more's duration. 79% of boys and 55% of girls intended to go on studying when their current course was completed. The most commonly held objective of college education was to make sure they did as well as possible in examinations. Students tended to be highly motivated, satisfied with college-life and the opportunities offered, and to work harder than they did at school.

* Government Social Survey inquiries are not charged to the Council's budget.

Phase 2B was concerned with the interviewing in 1968 of a random sample of 3,062 young men and women who had attended the sixth forms of 154 schools, and had left during the academic year 1965–1966. This survey has been published as *Schools Council Sixth Form Survey: Volume III: Sixth Form Leavers,* and contains data on examination achievements with which sixth formers left school and on the types of employment they subsequently entered. In addition, they were asked to give their views on sixth form courses in the light of their experience since leaving school.

Two-thirds of the leavers were still in full-time education, and a third in full-time employment. On the whole, those who had left recently and those still in the sixth form agreed on the important objectives of sixth-form courses; a high percentage of both attached importance to learning how to study on their own and to being given information about further education and careers. More pupils than leavers felt courses should be designed to enable pupils to do well in exams. More leavers than pupils felt current affairs and other non-examination subjects should be part of the sixth form course.

As with the sixth-form survey, there was little agreement amongst leavers on the width of courses taken in the sixth form.

PUBLISHED REPORTS

Schools Council Sixth Form Survey: Volume 1: Sixth Form Pupils and Teachers, Books for Schools 1970. £3.00 (+ 30p postage and packing)

Schools Council Sixth Form Survey: Volume II: Students in Full-time Courses in Colleges of Further Education, Books for Schools 1970. £2.50 (30p postage and packing)

Schools Council Sixth Form Survey: Volume III: Sixth Form Leavers, Books for Schools. £1.50 (+ 25p postage and packing).

All three obtainable from Councils and Education Press Ltd., 10 Queen Anne Street, London WIM 9LD.

FURTHER INFORMATION

Copies of these reports are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

R/X

INVESTIGATION INTO SUPPLEMENTARY PREDICTIVE INFORMATION FOR UNIVERSITY ADMISSION (EX 16 02)

CO-ORDINATOR: A.B. Sainsbury

LOCATION: Committee of Vice-Chancellors & Principals, 30 Maple Street, London W1.
Telephone: 01-636 6380

DURATION: 1966–1974 **AGE RANGE:** 16–18 **GRANT:** £73,750 (+ £73,750 from the DES)

AREA OF INQUIRY

The project was established in 1966 with a joint grant from the Schools Council and the Department of Education and Science at the suggestion of the Committee of Vice-Chancellors and Principals. The intention was to implement the two related recommendations made by the Robbins Committee about the selection of candidates for admission to university – that schools and universities should consider how school reports on candidates might best contribute to the process of selection and that an inquiry should be made into the assessment of their aptitude for academic work. The investigation is concerned essentially with the possibility of providing supplementary information to augment that at present provided by GCE and similar examination results, school reports and interviews. The largest part of the work is concentrated upon the design, testing and experimental use of a test of academic aptitude within the United Kingdom, and the investigation of its predictive value in terms of first year and degree results in various subjects in various universities. Some follow up work has also been attempted in colleges of education.

Although the main value of such a test is generally thought to be its predictive powers, the project has not lost sight of the educational value that such a test might have in reducing the predictive load at present placed on existing school leaving examinations, and is also aware that the test might well provide a useful extra-curricular calibrating instrument of especial value in a period of educational change.

PROCEDURE

In the original devising of aptitude tests, the project received initial assistance from Professor Oliver of Manchester University, who offered the use of his own version of an aptitude test that he had constructed on the American SAT model and had already tried out in a number of English sixth forms. (See EX 16 03 – Follow-up Study of Pupils into Institutions of Higher Education). It was decided that the project tests should be called tests of academic rather than scholastic aptitude and that they should be constructed so as to examine two aspects of generally developed abilities – the quantitative and the verbal. The project directorate was conscious of the danger of seeming to test attainment rather than aptitude, especially in the mathematical area; and care was taken to ensure that the test items required a mathematical knowledge within the compass of students on the Arts side as well as those specialising in the Sciences.

Four tests have been administered. The first, in October 1967, was taken by approximately 31,000 fourth-term sixth-formers, whether or not they were applying for a university place and by about 4,000 applicants for admission to the University of Oxford, as well as by a small pilot sample of 2,500 freshly admitted undergraduates. The second, constructed of items pre-tested in 1967, was taken in 1968 by 18,000 fourth-term sixth-form applicants through UCCA and by about 2,500 applicants to Oxford. The third set, in 1969 was taken by some 15,000 university applicants in a wide sample of schools, colleges and technical institutions in the United Kingdom and the fourth, in 1970, by some 5,000 candidates drawn from a smaller range of institutions.

In each case, candidates have been asked to provide the minimum of biographical information and schools have been asked for a rough assessment of the academic aptitude of their pupils.

The validation of the first three tests is being undertaken by the School and University Research Unit, under the directorship of Dr Bruce Choppin, at the National Foundation for Educational Research. The tests are being validated against the GCE results of candidates and against their progress at various stages through their higher education.

So far as the second recommendation is concerned, two experimental structured report forms have been devised and were completed in 1968 and in 1969 by samples of schools. Some difficulty was experienced in securing sufficient support in the schools for the circulation of an experimental report on a candidate at the same time as the completed UCCA form which was the procedure eventually recommended by university selectors. This part of the project's work has therefore been limited to an analysis of exisiting data.

A second report on A-level Syllabus Studies in History and Physics has been submitted to the Schools Council with a view to publication.

RELEVANT PAPERS AND PUBLICATIONS

Bulletin to Schools. 5 issues to date – February 1970, June 1970, November 1970, March 1971 (this issue contains a summary of Report No 1), June 1971. These bulletins, principally intended for schools participating in the project, are not generally available.

W.A. Reid 'The Universities and the sixth form curriculum' *Universities Quarterly* Spring 1972.

FURTHER INFORMATION

Copies of all publications listed above are available for reference in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL. Further information is available from the project director.

N.B. Arising out of the work of this project, a joint proposal by the University of Birmingham and the Joint Matriculation Board for research and development work in Syllabus Construction and Examining Techniques for Advanced Work in sixth forms was approved by the Schools Council. The project, directed by Mr W.A. Reid at Birmingham School of Education, runs from 1971–1973 at a cost of £22,183. For further details see sheet EX 16 09.

R

FOLLOW–UP STUDY OF SIXTH FORM PUPILS INTO INSTITUTIONS OF HIGHER EDUCATION (EX 16 03)

DIRECTOR: **Professor R.A.C. Oliver *** **RESEARCH ASSOCIATE:** **T. Christie**

LOCATION: Department of Education, University of Manchester, Manchester M13 9PL

DURATION: 1967–1970 **AGE RANGE:** 16–18 **GRANT:** £3,000 (+ £3,000 from DES)

AREA OF INQUIRY

In 1962 Professor Oliver suggested in an article in *Universities Quarterly* that a scholastic aptitude test might be used in the selection of applicants for admission to British universities. Such a test, known as the Oliver SAT and modelled on the American Scholastic Aptitude Test of the College Entrance Examinations Board, was administered to boys and girls in a sample of schools in England and Wales during the summer term of 1965.

In 1965 the Committee of Vice-Chancellors and Principals set up a four-year project (later extended to finish in 1974) funded by the DES and Schools Council and designated an Investigation into Supplementary Predictive Information for University Admission (EX 16 02) to construct and test an experimental test to be known as a Test of Academic Aptitude. It was agreed that preliminary indications of the ability of a test of scholastic or academic aptitude to predict the degree of success at university might be obtained by a follow-up study of the sixth formers who had taken the Oliver SAT in 1965, some of whom would be graduating in 1968, and this research project was accordingly set up.

PROCEDURE

All examination centres entering candidates for GCE A-level examinations conducted by the Joint Matriculation Board in 1964 were sent a questionnaire about their sixth forms, and from the 569 schools responding a stratified sample of 28 schools was selected, representing boys', girls' and mixed schools; grammar, technical and secondary modern schools; independent, aided, direct grant and maintained schools.

The Oliver Scholastic Aptitude Test was administered to sixth form pupils in these schools in the summer term of 1965.

In the winter term 1967 each school was asked to report on the destinations of the students. An operating sample of 1377 pupils was obtained for whom both post-school destinations were known and the SAT scores were available. 41.46% were at university, 23% at colleges of education, 6.39% taking a degree/or HND course, 8.35% in other further education, and 20.78% in employment.

CONCLUSIONS

A detailed analysis of the data of the university sample leads to the conclusion that the outcomes (in terms of degree class) of selection procedures involving SAT are essentially equivalent to the outcomes of present selection procedures. This implies that the candidates who would be selected through the SAT would be of commensurate calibre with the candidates at present selected. There is at the moment no reason to suppose that the present methods and those utilizing SAT are not interchangeable. Only the operational use of SAT or TAA could test this hypothesis, or show how a combination of SAT with present procedures might improve selection.

PUBLICATION

A research report has been prepared and submitted to the Schools Council and it is hoped that this will be published in due course.

FURTHER INFORMATION from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

* Professor Oliver has now retired.

JUNE 1972

R

SIXTH FORM CURRICULA AND THE ACADEMIC REQUIREMENTS OF OXFORD AND CAMBRIDGE (EX 16 04)

DIRECTOR: **Sir Desmond Lee**

LOCATION: University College, Cambridge CB3 9BB. **Telephone:** Cambridge (0223) 64811

ASSISTANT DIRECTOR: **Dr Bowen,** University of Oxford (until May 1970)

DURATION: 1968–1971 **AGE RANGE:** 16–18 **GRANT:** £22,350

AREA OF INQUIRY

The purpose of this investigation has been to examine over as wide a field as possible (and in particular in subjects where university work directly continues sixth form work) the curricula of those sixth form pupils who intend to go to university, and to study the relation of those curricula a) with the scholarship and entrance examinations set by the colleges of Oxford and Cambridge and b) with the courses such pupils will take when they reach the two universities in subjects where this is relevant.

PROCEDURE

The main concern of this research project has been to establish statistical procedures for analysing the annual entry to Oxford and Cambridge in such a way that the Admissions Offices of the two universities are able to accept them as part of their regular routine. The project's work has fallen into two main sections – statistical and curricular.

Statistical

An annual analysis of the entry to Oxford and Cambridge has been carried out by the two University Admissions Offices in a form devised by the project, and it has been agreed that the Offices will produce a statistical report in this form each year. Such reports have appeared in the Oxford *Gazette* and Cambridge *Reporter* for 1970 and 1971, and in the Cambridge *Reporter* for 1972.

In addition the GCE, College examination and degree results for the whole of the 1966 entry to Oxford and Cambridge have been compared and analysed. The first *Analysis* had a limited circulation, but a simplified form of the statistical tables involved has been published in the *Gazette* and *Reporter* for the 1967 entry, and in the Cambridge *Reporter* for the 1968 entry (there is an inevitable delay in the Oxford publication because of the high proportion of undergraduates staying for 4 years).

The project has also undertaken statistical work for the Working Party on the Cambridge Colleges Joint Examination.

Curricula

The relations between school and university curricula are beyond the scope of a small project, but the director has worked with the Cambridge Working Party on the Colleges Joint Examination, which has published two *Reports,* in November 1970 and 1971. More detailed considerations of the form and content of the examinations held by Oxford and Camrbidge Colleges must await on any changes in the patterns of sixth form work which follow from the recommendations of the Schools Council/ SCUE Sixth Form Working Party when these appear. The work of the Cambridge Working Party will be a useful preliminary to such consideration.

PUBLICATIONS

A survey of the information available on admissions and awards at Oxford and Cambridge was produced in July 1969. It deals mainly with the years 1965–69, but comprises also such information as is available for earlier years.

An analysis of the performance of 1966 entrants to Oxford and Cambridge, from GCE and scholarship results to degree results, was produced in March 1971. An analysis of the performance of 1967 entrants and statistics of 1970–1971 admissions have been published in the Oxford *Gazette* and Cambridge *Reporter.*

Circulation of these documents is limited (though the *Gazette* and *Reporter* circulate freely at Oxford and Cambridge), but a copy of each is available for reference only in the Schools Council Project Information Centre.

The final report, including data from the above papers, has been published as *Entry and Performance at Oxford and Cambridge 1966–71*, Macmillan Education, 1972, 60p.

This report sets out in a more readily comprehensible form the material contained in the various publications referred to above. Applications and acceptances are analysed by type of school, size of sixth form, geographical and social distribution and GCE results, and this analysis is used to identify those factors which influence selection. How far selection is justified in terms of academic success is shown by comparing performance in degree examinations with that at entry.

FURTHER INFORMATION is available from Sir Desmond Lee.

Copies of all publications listed above are available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

R

SIXTH FORM CURRICULUM AND EXAMINATIONS (EX 16 05)

DIRECTOR: W.A. Reid

LOCATION: School of Education, University of Birmingham, P.O. Box 363, Birmingham 15.
Telephone: 021-472 1301

DURATION: 1969–1971 **AGE RANGE:** 16–18 **GRANT:** £21,250

AREA OF INQUIRY

This research project was one of two set up at the suggestion of the Schools Council's Sub-Committee on Sixth Form Curriculum and Examinations (see also Relationship of Sixth Form Curricula and the Academic Requirements of Oxford and Cambridge EX 16 04). The initial grant was to aid the establishment of a Sixth Form Curriculum Development Group at Birmingham University, which was to involve a wide range of university and school teachers and work in co-operation with the Joint Matriculation Board.

The main purpose of the research was to formulate and assess some possibilities for the future by examining the relationships between the structure of the sixth form curriculum, the educational needs of sixth formers and the needs of the universities as expressed in sixth form examinations and the course requirements of university facilities and departments. It also included a consideration of the curricula patterns which are likely to emerge in the near future, the general problems of innovation in the sixth form in relation to the schools and universities, and specific problems of adapting to a particular new curriculum.

PROCEDURE

170 schools of all types in the West Midlands and North-West have participated in the project's work.

The project concentrated on three main areas of research:

Admissions Survey
The object of this exercise was to look at the way in which the sixth form curriculum is related to university entrance procedures and requirements. A questionnaire survey of 135 university faculties and departments in the Midlands and North was undertaken, and data was obtained on admissions procedure and criteria, and attitudes to A-level examinations and proposed changes in the sixth form curriculum.

A parallel questionnaire survey of head teachers and heads of departments in the 170 co-operating schools was also undertaken.

Survey of teachers' aims for sixth form education
This survey gathered information on the type of curriculum which teachers regard as best suited to the needs of sixth formers; on the relationship between their opinions on this and their perception of the general aims of sixth form education; on the practical difficulties inherent in implementing new curricula; on the extent to which the content of the school curriculum is influenced by the demands of universities; and on the changes already taking place in the character and composition of sixth forms and in the organisation of their curricula.

The information was gathered largely by means of questionnaires and interviews and a conference on sixth form education for participating schools was held in November 1969.

Curriculum components survey
As a preliminary step towards a study of the whole curriculum, studies of two subject areas, history and physics, have been carried out in order to produce some empirically based evidence about the nature of sixth form studies and the demand for them.

FINAL REPORTS

The first report, entitled *The Universities and the Sixth Form Curriculum* has been published in the Schools Council Research Studies series by Macmillan Education 1972. The report focuses on admissions to higher education and covers such aspects as the machinery of applications, contact with schools and universities, specialised requirements in different departments, prediction of performance from past school records and examinations, selection processes for entry, and the interaction between the school curriculum and the demands of the universities. These factors are considered within a broader educational and social context, in an attempt to give a clear overall picture and identify organising principles.

FINAL PUBLICATION

The National Foundation for Educational Research will report periodically during the next year to the Admissions Project Committee. This body will report to the Committee of Vice-Chancellors and Principals and will keep the DES and Schools Council informed of progress.

FURTHER INFORMATION from the project co-ordinator or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

R

THE RELIABILITY OF GCE EXAMINATIONS (EX 16 06)

DIRECTOR: J.K. Backhouse

LOCATION: Department of Educational Studies, Oxford University, 15 Norham Gardens, Oxford OX2 6PY. **Telephone:** Oxford (0865) 54121

DURATION: 1969–1970 **AGE RANGE:** 16–18+ **GRANT:** £400

AREA OF INQUIRY

Conventional formulae for estimating the reliability of an examination are appropriate to papers in which there is no choice of questions. This project was concerned with the development of formulae for estimating the internal consistency of examinations when choice of questions is allowed.

PROCEDURE

A number of formulae have been obtained based on different assumptions. Because of the complicated nature of the formulae some tentative approximations have been suggested, and one of the main objectives of the research has been to evaluate the usefulness of these approximations. The other main objective has been to obtain values for the reliability of a range of papers and subject examinations at both O-level and A-level.

PUBLICATION

The results of the research are incorporated in *British Examinations: Techniques of Analysis,* by D.L. Nuttall and A.S. Willmott, with contributions by J.K. Backhouse and R.B. Morrison, NFER, 1971.

FURTHER INFORMATION

A copy of this report is available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

JUNE 1972

R

PREPARATION, ASSESSMENT AND SELECTION OF SIXTH–FORMERS FOR UNIVERSITY: A SURVEY OF CURRENT PRACTICES IN OTHER COUNTRIES (EX 16 07)

DIRECTOR: Dr W.D. Halls **RESEARCH FELLOW:** A.G. Hearden

LOCATION: Department of Educational Studies, 15 Norham Gardens, Oxford.
Telephone: Oxford (0865) 54121

DURATION: 1969–1970 **AGE RANGE:** 16–18 **GRANT:** £5,423

AREA OF INQUIRY

The research was commissioned to provide the Schools Council's Sixth Form Working Parties with information on the preparation of young people for university, in respect of school organisation, curriculum content, methods of assessment and admissions procedures. The survey was to be restricted to five countries – USSR, USA, France, West Germany and Sweden – and an indication of general trends was to be discussed in terms of their possible relevance to the United Kingdom.

PROCEDURE

The first part of the research was concerned with an analysis of the education system in the five countries with particular reference to the areas outlined above. In each case a survey was made of the school system, terminal examinations and university admissions. The second part involved a comparative analysis of these five countries, with particular reference to current practice in England and Wales. This was done in four areas: lower secondary, upper secondary, assessment and university admissions.

FINAL REPORT

The research report will be published as *Paths to University: Preparation, Assessment, Selection* by Macmillan Education, late 1972.

An accurate account of current practice in the five foreign countries surveyed is greatly facilitated by the national or State authorities. The absence of standard curricula in England and Wales makes direct comparisons difficult since it is not possible to gauge the extent of variations between individual schools. This reservation should be borne in mind in considering conclusions.

At the *lower secondary level* segregation into different types of school can mean in practice segregation according to different curricula. While there is general and increasing support for the type of system which eliminates this kind of selectivity, it is counterbalanced by decreasing adherence to principles of total mixed ability grouping in those countries where a non-selective pattern is already firmly established. If any general trend is discernible in the countries studied it is towards a situation in which the significant groupings are based on the choice of the additional optional courses made available to pupils.

At the *upper secondary level* all countries have experienced a significant increase in numbers. This has produced a much more heterogeneous clientele than was traditionally catered for in academic courses. The curricula problems are in a way the reverse of those experienced in England. There is a conflict between the desire to retain the broad range of studies, embracing both humanities and scientific disciplines, traditional in the French lycee and the German gymnasium, and a growing pressure towards specialisation which is accounted for by a number of factors connected with the growth in demand for higher education. Thus while England is trying to broaden the upper secondary curriculum other countries are trying to narrow it down. In the countries surveyed the practice is invariably to have a common core of studies, trying to keep all categories of pupil together for as much of this as possible, together with a choice of optional specialisms, allowing scope for a degree of 'study in depth'. There is a strong measure of consensus about the components of the common core and increasing imaginativeness in the suggestions for specialising.

As regards *assessment* a critical review is given of the various methods currently in use, explaining the background against which their success must be judged. In addition to conventional written examinations, these include continuous or internal assessment, objective testing of achievement, oral examining and the 'examen bilan', a kind of balance-sheet concept which is not merely an aggregate of marks but rather a kind of profile of the individual which it is possible to use constructively in career guidance. Some of the research in this field suggests that information about performances in non-specialist subjects is extremely relevant to the task of identifying the abilities required of prospective university entrants. In England the initiative for developing new methods of assessment has lain largely with examination boards. See also Supplementary Predictive Information for University Admission (EX 16 02).

The growth of numbers of applicants for *university admission* has created widespread problems. While in the United States universal post-secondary education may seriously be envisaged as an objective for the 1970s, for Europe such a concept is still beyond the boundaries of practical possibility. In Western European countries the final school leaving certificate, baccalaureat, abitur etc., has always fulfilled the function of a university entrance qualification conferring an automatic right of entry to any faculty. The expansion of upper secondary education has thrown admission procedures of this nature into disarray. But established traditions are difficult to change and the restriction of available places to a fixed number is bitterly opposed by students. The USSR provides an example of the opposite extreme to a free entry system in that all admissions are regulated in accordance with national man-power requirements. The problem is related to that of the structure of higher education and in this context it is interesting to note that France and Germany are both moving towards a three-tier system in which a two year foundation course leads to an intermediate qualification, followed by two years to a kind of masters' degree and a further two years for research training.

FURTHER INFORMATION

The report, when published, will be available for reference only in the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

R

THE OPERATION OF THE NUFFIELD A–LEVEL CHEMISTRY EXAMINATION (EX 16 08)

DIRECTOR: J.C. Mathews **RESEARCH OFFICER:** J.R. Leece

LOCATION: Department of Educational Research, University of Lancaster, Cartmel College, Bailrigg, Lancaster. **Telephone:** Lancaster (0524) 65201

DURATION: 1970–1973 **AGE RANGE:** 16–18 years **GRANT:** £6,000 (+ £600 from Nuffield Foundation)

AREA OF INQUIRY

The examination in Nuffield A-level Chemistry (SC 16 02) introduced assessment techniques new to science examinations at this level: objective tests, structured questions, multiple impression marking, and the internal assessment of practical work. These techniques were developed during the two years of the project trials, but it has not yet been determined how effective they are when operated on a larger scale within the national system of examinations.

The new techniques are accompanied by quantative specifications of examination objectives, making possible, for the first time at this level, the use of student attainment in examinations to determine how far the objectives of the course are being achieved. This will involve a detailed analysis of student performance in the various dimensions of the examination specifications.

It is hoped that the research, in addition to its immediate value in monitoring attainment of the objectives of the Nuffield A-level Chemistry Course, will give rise to two other important outcomes:

1. an improvement of assessment techniques
2. a pilot study of the way in which examination performance can be used to monitor curriculum design.

PROCEDURE

The work is in two main parts:

1. **The investigation into the operation of internal assessment of practical work**
   This will include an investigation into a) methods of assessment within all schools engaged in the teaching of Nuffield A-level Chemistry (approximately 60 at present) and b) methods of moderation applied by the University of London Schools Examining Department which has been examining the trial school candidates.* At present the marks awarded by teachers for practical work are subject to moderation which depends on the performance of teaching sets in those questions in the written papers which are based on practical work. There are several possible variations of this moderating procedure and it is proposed to determine the effect of these various moderations on the final mark awarded for practical work.

2. **The investigation into the written examination.**
   Paper 1 is an objective test of 50 items. Paper 2 consists of structured questions requiring about 50 short responses which are makred from a detailed mark scheme. Paper 3 consists of a choice of questions requiring a free response; the answers are marked by impression by at least two examiners. As a result of an investigation into such things as 'relative attainment in the themes and topics of the course' and 'relative attainment in the educational objectives of the course', it is hoped to provide a detailed statement of the attainment of objectives of the Nuffield course and to make suggestions for monitoring procedures which may be generally adopted for examinations of this type at this level. It is also expected that a statement will be made about examination techniques at this level with suggestions for their refinement.

FURTHER INFORMATION is available from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

* The University of London Entrance and School Examination Council are providing facilities for the abstraction of data from the scripts and from their records, and are also providing some computing facilities.

JUNE 1972

R

SYLLABUS CONSTRUCTION AND EXAMINING TECHNIQUES FOR ADVANCED SIXTH FORM WORK (EX 16 09)

DIRECTOR: W.A. Reid

LOCATION: School of Education, University of Birmingham, P.O. Box 363, Birmingham 15.
Telephone: 021-472 1301

DURATION: 1971–1973 **AGE RANGE:** 16–18 **GRANT:** £22,183

AREA OF INQUIRY

This programme of research and development was jointly proposed by the University of Birmingham and the Joint Matriculation Board and arose out of studies already being undertaken by the Sixth Form Curriculum and Examinations Project (EX 16 05). It will build upon contacts already established with schools in the West Midlands and North-West. It is also related to the current concern about A-level examinations and about possible future developments and sixth form curricula.

The main aim of this project is the involvement of teachers in producing and, where possible, implementing new schemes for syllabus construction and new approaches to examination and assessment. It is hoped:

1. to establish criteria for syllabus construction which could be applied in the event of a need arising to reduce the time available for the teaching of main subjects in the sixth form
2. to examine the full range of possibilities for constructing syllabuses which could be adapted to schemes which might involve more than one level of study, and therefore more than one level of examining, with a minimum of strain on the teaching and timetabling resources of the schools
3. to investigate a wide range of possible techniques of examination and assessment in terms of their acceptability to teachers and pupils and their reliability and validity for the measurement and prediction of achievement
4. to develop syllabuses and examinations in areas not yet catered for, or only partially catered for, by the Joint Matriculation Board, e.g. Social Sciences and technology
5. development of new alternative syllabuses and examinations in subjects which have not so far undergone major reconsideration at sixth form level, e.g. the craft subjects and geography.

PROCEDURE

The work is centred on three main investigations:

1. Current procedures of the Joint Matriculation Board, during which an attempt will be made to assess the relevant contributions of different groups, such as teachers, university lecturers, administrators etc. to the Board, and the extent to which individual initiative is important in formulating the policies of the Board and in translating those policies into action.
2. Syllabus Construction Groups. Decisions on the formation of these panels and the choice of subjects for study will depend upon the identification of groups of teachers prepared to make the considerable investment of time and effort which this work will entail, and the selection of areas of study which represent a reasonable sampling of the whole range of subjects offered at A-level. It is hoped that three or four groups will be formed near Birmingham and three or four near Manchester and that these gorups will work on the production of syllabuses, parts of syllabuses, specifications for syllabuses, examples of teaching materials, statements of patterns with suggested solutions, results of surveys etc.
3. Surveys of teachers, which will be designed to answer such questions as
   - how do they think syllabuses are constructed?
   - how do they think syllabuses ought to be constructed?
   - what do they consider to be important in evaluating a finished syllabus?
   - what attitudes do they have to various proposals for developing new styles and techniques of examination and assessment?

FINAL PUBLICATION

Reports will be prepared for submission to the Schools Council in due course.

RELEVANT PUBLICATIONS

Reid, W.A. *The Universities and the Sixth Form Curriculum* Macmillan Education for the Schools Council 1972, £1.50.

FURTHER INFORMATION is available from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

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JUNE 1972

R

G.C.E. A–LEVEL COMPARABILITY IN MATHEMATICS (EX 18 01)

DIRECTOR: Professor D.B. Scott **STATISTICAL CONSULTANT:** Professor J.F. Scott

LOCATION: School of Mathematical and Physical Sciences, University of Sussex, Brighton
Telephone: Brighton (0273) 66755

DURATION: 1969–1971 **AGE RANGE:** 18 years **GRANT:** £5,000

AREA OF INQUIRY

The project was commissioned on the recommendation of the Schools Council Working Party on A-level comparability and by the Mathematics Committee to compare, over a period of two years, the possible variations in standards of assessment at A-level of single-subject mathematics by the three examination boards. The recent growth in the importance of the cleaning-up process for university admission, where last minute decisions are necessarily based on the crude evaluation of A-level results, draws attention to the importance not merely of ensuring that there is no discrepancy in standards, but also dispelling any suspicion that there might be.

PROCEDURE

The investigation was limited to three boards. The co-operation was enlisted of a number of schools served by these boards, who used for the internal examination of their A-level candidates in the preceding Spring term a set of recent examination papers of one or other of these boards. These papers were marked and graded by the original official examiners, and the results of the candidates in this examination were compared with the grades they obtain in the Summer A-level examination of their own board. All possible combinations of the three collaborating boards were used for the internal and external examinations. 36 schools with not less than 12 candidates each participated in the scheme. This procedure was repeated in 1971.

FINAL PUBLICATION

A report containing an analysis of the results has been submitted to the Schools Council with a view to publication.

FURTHER INFORMATION is available from the Schools Council Project Information Centre, 160 Great Portland Street, London WIN 6LL.

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For reference number explanation see Foreword.

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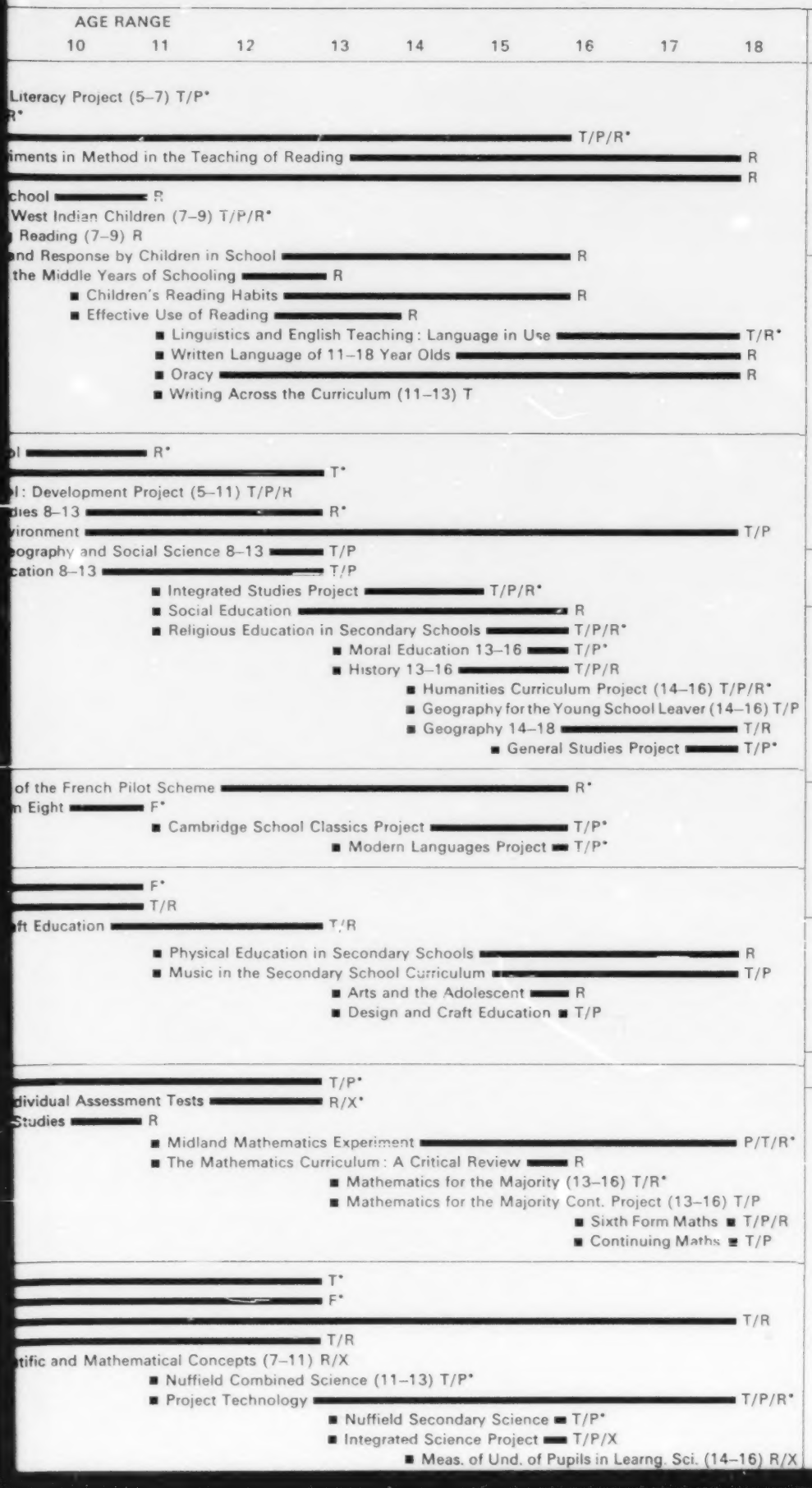

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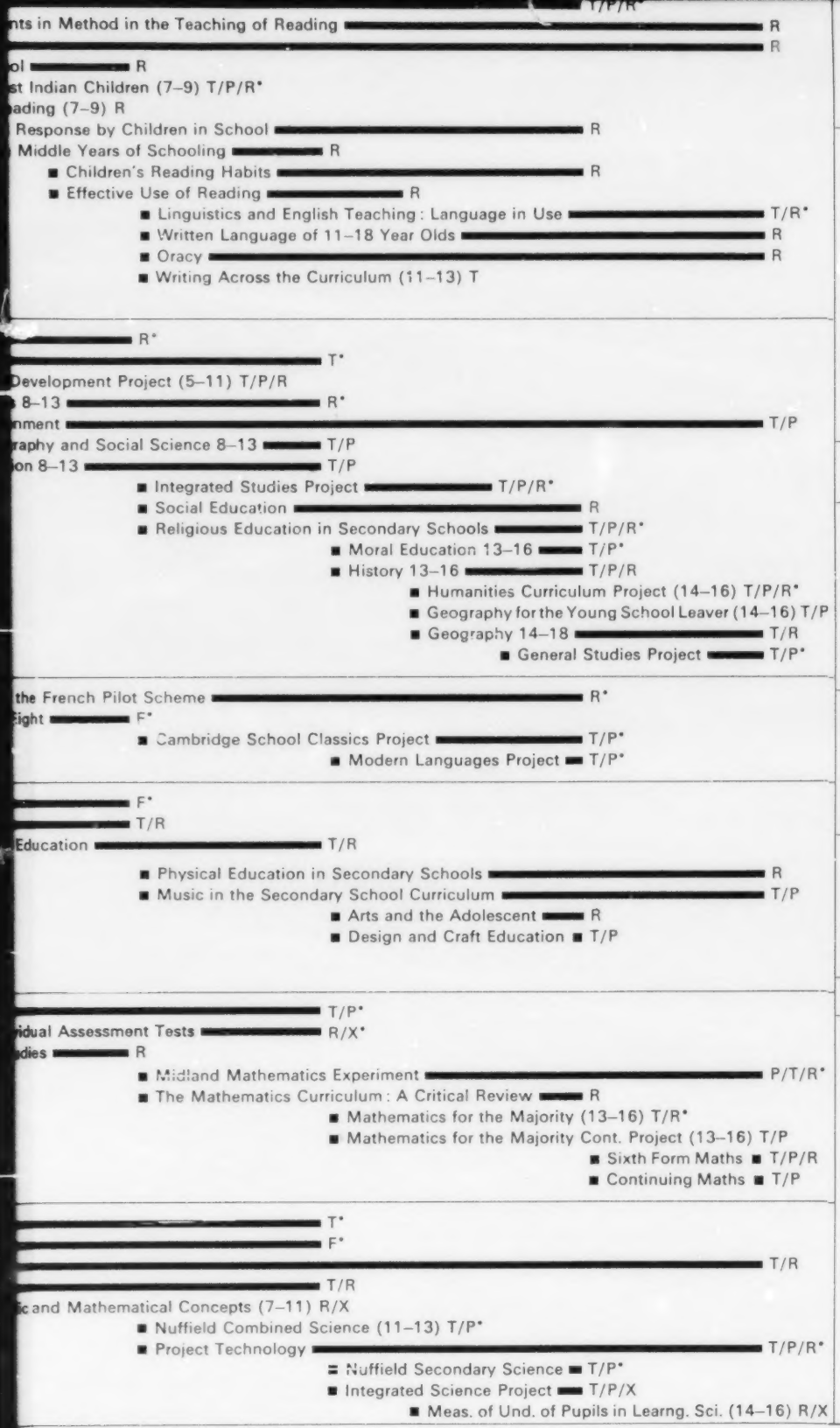
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r material P – Pupil material X – Tests (for pupils) F – Film * – Some or all materials published, September 1972 †Projects that

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■ 'Attitudes to Science' Scales (14–16) R/X*
■ Ev. of Science Teaching Methods (14–16) R
Nuffield
A-level Bio. Science T/P*
A-level Chemistry T/P*
A-level Phys. Science T/P
A-level Physics T/P*
■ Reduced Sci. Courses R
■ Engineering Science T/P

T/R
ry and Nursery Education R*
mpensatory Education T/P/R/X*
■ Gifted Children in Primary Schools R
■ Use of Project Material by Teachers of Disadvantaged Pupils R
■ Education for a Multi-Racial Society T/P/R
■ Middle Years of Schooling R*
■ International Association for the Evaluation of Educational Achievement, Phase 2 R
■ Mass Media and the Secondary School R
■ Industriousness and Achieve. in Sec. Sch (13–16) R*
■ N.W. Reg. Curric. Dev. Project (13–16) T/P/R*
■ Careers Education and Guidance T/P
■ Computers in the Curriculum (14–18) T/P

■ Curricular Needs of Slow Learning Pupils R
■ Language Development for Deaf Pupils (8–12) R/T

■ Bilingual Education Project T/P
■ Science and Mathematics in Welsh Medium Schools T/P
■ Welsh as a First Language at the Primary Level T/P
■ Teaching and Learning of English in Wales T/P
■ Attitudes to and Motivation for the Learning of Welsh and English in Wales (10–14) R
■ Implications of Social and Cultural Change for Secondary Education in Wales R
■ Welsh as a First Language at Secondary Stage R
■ History of England and Wales: an Integrated Course (11–13) T/P

■ Sample Survey of Parental Attitudes R*
■ Education of Travelling Children R
■ Parents and Teachers: A Pilot Study R
■ Effect of Environmental and Social Factors in Educational Attainment R
■ Youth Service and the Schools (14–16) R

■ Resource Centres R*
■ School Organization and Pupil Involvement R
■ Change and Innovation in an Expanding Comprehensive School R
■ Team Teaching in Integrated Studies (11–13) R
■ Planning of Courses R*

15 16 17 18 19 20

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Techniques of Examining for Use in CSE Examinations (14–16) R*
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ne of School Assessment in English Language (O-Level) (14–16) R*
F*
CSE Grades for Further Education (14–16) R*
y of Tests of Basic Proficiency in French (14–16) R/X
■ Research into CSE and Sixteen Plus Examinations (15–16) R
■ GCE Examining at Ordinary Level (15–16) R
■ Sixth Form Survey R*
■ Investigation into Supplementary Predictive Information for University Admission (16–18) R
■ Follow-up Study of Sixth Form Pupils Into Institutions of Higher Education (16–18) R
■ Sixth Form Curricula and the Academic Requirements of Oxford and Cambridge (16–18) R*
■ Sixth Form Curriculum and Examinations R*
■ The Reliability of GCE Examinations R*
■ Preparation, Assessment and Selection of Sixth-Formers for University (16–18) R
■ The Operation of the Nuffield A-level Chemistry Examination (16–18) R
■ Syllabus Construction and Examining Techniques for Advanced Sixth Form Work (16–18) R
■ GCE A-level Comparability in Mathematics (18) R

Nuffield

- A-level Biol. Science T/P
- A-level Chemistry T/P*
- A-level Phys. Science T/P
- A-level Physics T/P*
- Reduced Sci. Courses R
- Engineering Science T/P

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Compensatory Education T/P/R/X*
- Gifted Children in Primary Schools R
- Use of Project Material by Teachers of Disadvantaged Pupils R
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- GCE A-level Comparability in Mathematics (18) R

* – Some or all materials published, September 1972 †Projects that received funds in addition to the Schools Council contribution

SCHOOLS COUNCIL PROJECT NEWS

hools Council Project Information Centre,
Great Portland Street, London WIN 6LL. 01-580 0352

NUMBER 1 NOVEMBER 1972

This short bulletin of news from Schools Council projects is intended to help you keep up-to-date the information in the project profiles. We do not plan to carry articles by members of project teams, or comments from teachers working with projects' methods and materials: that is the domain of *Dialogue*. What we hope to do is to keep you informed of publications from projects, forthcoming conferences and courses where projects want these advertised nationally, extensions and developments to existing projects, and the establishment of new ones.

The bulletin will go out every two months to project directors, local education authorities, colleges, institutes and departments of education, HMIs, teachers' centres and anyone not on this free distribution list who buys a set of profiles. It is printed on one side of the paper only so that those of you who want to cut out individual items and attach them to the profile sheets can do so.

If you have any comments or suggestions as to how the bulletin could be more useful to you, or any items you would like to see included, please let me know.

Gillian Box
Project Information Centre

ENGLISH IN THE MIDDLE YEARS OF SCHOOLING (EN 08 02)

Mrs. Margaret Mallett has asked us to point out that there is nothing she can add to the profile, and that no further information is available until the publication of the report. A limited number of copies of a paper written by the project in 1971 on 'good' language practice at the younger end of the middle years age range is available free from the Project Information Centre.

11/72

HISTORY, GEOGRAPHY AND SOCIAL SCIENCE 8–13 (HU 08 03)

An Interim Statement is now available from the project, price 20p. This includes a discussion of objectives relevant to the education of children aged 8–13 in history, geography and social science; the designation of key concepts; the postulation of four basic variables; the selection of content in the light of objectives; the development of units of work in trial schools; a consideration of structure and sequence of work; the eventual publications of the project; and the development of a strategy of diffusion.

11/72

INTEGRATED STUDIES PROJECT (HU 11 01)

An account of the different definitions of a curriculum project held by various groups of participants in it, focussing on the Integrated Studies Project, is published by Marten Shipman in the November 1972 issue of *Journal of Curriculum Studies*.

Sample Kits. Owing to the heavy demand for sample material, Oxford University Press are now charging £1.00 for a kit including specimen sheets, slides and the teachers' book, and £2.50 for full kits as supplied to Teachers' Centres etc. These include one copy of every pupil's sheet; the two teachers' books are sent on an inspection basis and charged separately. Available from OUP Education Department, Walton Street, Oxford OX2 6DP.

11/72

SOCIAL EDUCATION (HU 11 02)

Professor Davies has retired, and any inquiries should now be directed to Len Masterman, Tutor for In-Service Training in the Humanities, School of Education, University of Nottingham.

A number of courses and conferences on Social Education are planned for 1973. The first of these is a six week in-service course at Grantham Teachers' Centre beginning Monday 29 January at 7.15. Further details from Mr. Masterman.

11/72

RELIGIOUS EDUCATION IN SECONDARY SCHOOLS (HU 11 03)

The first materials will be published in 1973 by Rupert Hart-Davis, Granada Publishing Ltd., Park Street, St. Albans, Herts.

11/72

MORAL EDUCATION 13–16 (HU 13 01)

Six Slidefolios prepared as an introduction to 'What Would You Have Done?' are now available from the Slide Centre, Portman House, 17 Brodrick Road, London SW17 7DZ at £1.50 each. Each slidefolio contains 12 slides of maps, documents, photographs, paintings etc.

Three television programmes on moral education entitled *Behaviour and Belief* will be broadcast at 3.45 on BBC1 on January 9, 16 and 23 and repeated at 6.35 on BBC2 on January 11, 18 and 25. The third of these (January 23 and 25) will deal with the Moral Education Project.

11/72

GENERAL STUDIES PROJECT (HU 15 01)

Six thematic catalogue volumes and one volume of supplementary units for previous catalogues are provisionally planned for publication in June 1973. The six new themes are *Africa, Design, Genetics and Evolution, Living in Britain, Nazi Germany* and *Towns.*

Schools and colleges subscribing for the first time in 1973 (subscription £40), but wishing to obtain units from the 1972 list, can purchase the 1972 catalogue for £16. Thereafter they can use their unit order forms to obtain both 1972 and 1973 material.

Teachers' centres can buy the catalogues only for £16 per annual set.

Subscribers to the 1972 catalogue may continue to use their unit order forms until 1974, and 1973 subscribers until 1975.

The address of Michael Park, Publishing Manager, is now 9–11 The Shambles, York. Telephone: 0904 20801.

11/72

CAMBRIDGE SCHOOL CLASSICS PROJECT (LA 11 01)

The first two units of the Foundation Course, *Troy and the Early Greeks* and *The Gods of Mount Olympus,* were published at the beginning of November. Units I and II cost £2.50 not £2.20 as stated in the profile. The Teachers Handbook is £1.20. Orders and inquiries to Cambridge University Press, Bentley House, 200 Euston Road, London W1.

11/72

MODERN LANGUAGES PROJECT (LA 13 01)

From January 1973 the director of this project will be Mr. David Rix, formerly Organiser of the Russian Section. Mr. David Rowlands has been appointed Director of the Northern Ireland Community Relations Commission.

The following materials have now been published and are available from E.J. Arnold, Butterley Street, Leeds LS10 1AX.

A Votre Avis	Stage 5	£63.71 + £1.57 purchase tax
Vorwarts	Stage 3	£28.97 + £1.81 purchase tax
Adelante	Stage 4	£38.50 + £2.40 purchase tax

11/72

MATHEMATICS FOR THE MAJORITY CONTINUATION PROJECT (MA 16 01)

The film made by this project, entitled *Teacher-Based Curriculum Development*, is now available from the project at £65.

A limited number of units of trial material are available from the project at cost price.

11/72

SCIENCE 5–13 (SC 05 01)

A course is being planned at Bath College of Education from 9–13 April 1973. Intended for about 100 wardens, teachers, college lecturers and LEA advisers, the main object of the course is to introduce the project and its methods to those who may not have local means of making close contact with it, and to provide others than members of the project team with the opportunity of acting as trainers at a national level.

Inquiries should be sent to Len Ennever at the project.

11/72

NUFFIELD COMBINED SCIENCE (SC 11 01)

Mr. Elwell has now left the City of Birmingham College of Education to become Educational Adviser to Philip Harris Ltd., Ludgate Hill, Birmingham B3 1DJ.

11/72

PROJECT TECHNOLOGY (SC 11 02)

The first six Project Technology handbooks were published by Heinemann Educational Books in October, price 45p each or £2.25 for the pack of six titles.

These were *Bernouilli's Principle and the Carburettor, Simple Bridge Structures, Simple Materials Testing Equipment, Introducing Fluidics, Engine Test Beds* and *Gas Fired Muffle Furnaces.*

11/72

ENGINEERING SCIENCE (SC 16 06)

These materials will be published by Macmillan Education, Houndmills, Basingstoke, Hants during 1974.

11/72

EDUCATION FOR A MULTI-RACIAL SOCIETY (IN 05 03)

Mr. Townsend, director of this new project, has recently appealed in the educational press for any teachers involved in work of some originality in the area of multi-racial education to get in touch with him. For those who may have missed this request we repeat it here.

11/72

NORTH WEST REGIONAL CURRICULUM DEVELOPMENT PROJECT (IN 13 02)

The Domestic Studies Materials are now published by and available from Holmes McDougall Ltd. The complete kit, comprising workbooks, teachers book and photographs on *Myself Now, Myself at Home,* and *Myself from Birth,* is sufficient for a class of 20 pupils for a year's course and costs £20.

The English materials *(Situations)* and Social Education *(Vocation, Freedom and Responsibility, Consumer Education* and *Conservation)* are published at the prices given in the profiles.

The Technology Course has been distributed through teachers' centres by Mr. W. Dempsey, Blackburn Teachers' Centre, St. Paul's Avenue, Blackburn BB2 1LZ at £4. All copies are now sold, but the course may be reprinted if the demand is sufficient.

The Health Education material is being distributed through teachers' centres by Mr. A.E. Arstall, Curriculum Development Centre, Flixton Road, Urmston, Lancs. A limited number is still available at £4 and orders should be sent to Mr. Arstall.

11/72

SCHOOLS COUNCIL PROJECT NEWS

Schools Council Project Information Centre,
160 Great Portland Street, London WIN 6LL. 01-580 0352

NUMBER 2 JANUARY 1973

This second issue of news from Council projects is again sent to all those who buy or are on the free distribution list for sets of project profiles. A number of colleges have asked whether we could send them extra copies to circulate to members of staff. As each short item assumes that it will be read in conjunction with the relevant profile, we would prefer to restrict circulation to those people who are already on the profiles distribution list.

In November Programme Committee approved three new projects and full details of these will appear in the next issue. They are Education of Severely Educationally Sub-Normal Pupils to be directed by Dr. Peter Mittler of the Hester Adrian Research Centre at Manchester University; Health Education 5-13 to be based at St. Osyth's College of Education Clacton and directed by Mr. Trevor Williams; and Communication Skills in Early Childhood, to be directed by Dr. Joan Tough at Leeds University as a continuation of work begun with the Pre-School Language Project (EN 02 01).

Can I again ask you to send me any comments or suggestions as to ways in which this bulletin could be more useful to you? We are happy to deal with any inquiries arising from the profiles or from this bulletin, and you are of course welcome to visit the Project Information Centre any time between 10.30 and 5.00, Monday to Friday.

Gillian Box.
Project Information Centre

ENGLISH FOR IMMIGRANT CHILDREN (EN 05 03) p.5

Two one-day conferences will be held at the Schools Council in March, both concerned with recently published materials. Monday 12 March will be devoted to *Scope Senior Course*, and Tuesday 13 March to *Scope Stage 2*. Speakers on both days will include members of the team and there will be an opportunity to inspect the materials. The £1.00 conference fee includes coffee, lunch and tea and applications should reach Miss Helen Carter at the Schools Council by 16 February.

Talking in Class, the 16 mm film outlined in the profiles, will be available for sale or hire from the National Audio-Visual Aids Library, Paxton Place, Gipsy Road, London, SE27 9SR in the spring. Details of content, availability and cost will be given in the March issue of *Project News*.

1/73

TEACHING ENGLISH TO WEST INDIAN CHILDREN (EN 07 01) p.10

A 16 mm black and white film entitled *Concept 7-9* showing this project's materials in use will be available from the National Audio-Visual Aids Library, Paxton Place, Gipsy Road, London, SE27 9SR in the spring. Details of content, availability and cost will be given in the March issue of *Project News*.

1/73

LINGUISTICS AND ENGLISH TEACHING PROGRAMME (EN 11 01) p.16

The first two volumes in the second series of Linguistics and English Teaching Papers will be published in April, and not in February as stated in *Dialogue 13*. Volume 1, *Language at Work*, contains three papers: 'The individual and his development of a language' by Geoffrey Thornton; 'You never speak a dead language', by David Birk; and 'An exercise in linguistic description' by R.A. Hudson. Volume II, *The English Writing System: Notes Towards a Description* is a single paper by K.H. Albrow.

Publication by Longman, orders through booksellers in the normal way.
Volume 1 - £1.50, Volume 11 - 90p. 1/73

ENVIRONMENTAL STUDIES (HU 05 02) p.21

The final teachers guide, *Starting from Rocks*, will be published in March, price £1.75.

Orders and inquiries to Rupert Hart-Davis, Granada Publishing Ltd., Park Street, St. Albans, Herts.

1/73

PROJECT ENVIRONMENT (HU 08 02) p.24

The materials from this project will be published by Longman from spring 1974.

1/73

MORAL EDUCATION 8-13 (HU 08 04) 0.26

The project's telephone number is now Cambridge (0223) 57492 or 56962.

1/73

INTEGRATED STUDIES PROJECT (HU 11 01) p.27

Oxford University Press are to publish an integrated Studies bulletin twice yearly to supplement the Integrated Studies Project materials. The bulletin will be sent free of charge to schools and teachers' centres which have bought the materials. The first issue, to be published in February, will be devoted mainly to an article by Arfon Williams of Hertford Boys' School, Cheshire describing how his school set up integrated studies, the problems they encountered, and what changes they have made in organisation as they have gone along. A detachable inside sheet will provide up-to-date information on Tristan de Cunha, including pieces written by Tristan schoolchildren.

ATV is currently producing a series of ten 15-minute colour films entitled *Exploration Man*, based upon themes in Unit 1 of this project. The series will be shown in September 1973, repeated in 1974 and possibly 1975 and the films will be also distributed on 16 mm by the Rank Film Library. Full details will be published by ITV in March.

1/73

RELIGIOUS EDUCATION IN SECONDARY SCHOOLS (HU 11 03) p.29

The associate scheme described in the profile has now been closed with a membership of 480 schools.

The project has a full programme of courses arranged for 1973 in all parts of the country and anyone wishing to attend such a course should contact Mr. Horder at the project or their local education authority.

1/73

HUMANITIES CURRICULUM PROJECT (HU 14 01) p.32

Living in Cities will be published by Heinemann Educational Books in March price £37.67.

Two further occasional publications are now available from CARE: *CSE (Mode 3) and the Humanities Curriculum Project – some examples of current syllabuses* edited by Alan Dale and John Elliott (10p including postage) and *Discussion and After* by Mario Cerutti (3p including postage).

Two one-day introductory courses will be held at the Schools Council on Tuesday 6 February and Friday 16 March, running from 11 a.m. until 4.30 p.m. There will be a charge of 75p for coffee, lunch and tea. A full length training course will be held at the University of East Anglia from 14-19 April at a cost of £27 to include tuition and accommodation. Applications for all three courses should be sent to Miss Pauline Clapham, CARE, University of East Anglia, University Village, Norwich NOR 88C as soon as possible.

The first issue of a new journal, *Innovation in Practice*, will be published in the spring term as the bulletin of the Centre for Applied Research in Education. The journal is intended as a forum for the discussion of educational innovation as it affects teachers, local authorities and colleges of education and will also provide a link between schools engaged in HCP. It will be published three times a year at an annual subscription of £1.25 and orders should be sent to CARE.

1/73

GEOGRAPHY FOR THE YOUNG SCHOOL LEAVER (HU 14 02) p.34

Copies of a paper entitled *The Project in Schools*, a collection of experiences and reflections by teachers involved in the first term of the trial, are available from the project at Avery Hill College, price 18p including postage.

1/73

CAMBRIDGE CLASSICS PROJECT (LA 11 01) p.39

Language Course. Whilst the development work on the language course is completed, and the materials are now being published, the project is maintaining its office in Cambridge to deal with inquiries and advise on problems of diffusion.

Publications: Unit III tape is now published (price £3.80 + 78p p. tax), the slides will be published in May and the teachers' handbook in September. Unit IV pupil material will be published in February. Inquiries and orders to Cambridge University Press, Bentley House, Euston Road, London W.1.

Classical Foundation Course. The Schools Council has recently approved an additional grant of £1,500 over two years (from August 1973 to August 1975) to enable the Roman units of the non-linguistic Fouccation course material to be completed under the direction of Mr. Martin Forrest at Bristol.

Publications: Unit III of the Greek material, *Greek Religion* is now expected in September 1973 (not June as given in *Dialogue* 13), and Units IV and V *Athens, Sparta and Persia* and *Greek Festivals* in January 1974.

1/73

MODERN LANGUAGES PROJECT (LA 13 01) p.40

A sum of £41,500 has been granted to this project to cover additional costs incurred during its lifetime. In addition a grant of £21,500 has been made towards a two-year dissemination project, to be undertaken by the Materials Development Unit at York University. Funded jointly with the Nuffield Foundation, this project will organise courses and conferences on the modern languages materials, participate in courses organised by local education authorities and the DES, continue working with the publishers on the preparation of materials for overseas markets, prepare guides and sample teaching units for initial and in-service training, and provide continued liaison with the Examining Boards.

Publications: *Vperyod! 5* is now published by and available from E.J. Arnold, Butterley Street, Leeds LS10 1AX at £23.12 + £1.24 p. tax.

1/73

MATHEMATICS FOR THE MAJORITY CONTINUATION PROJECT (MA 13 02) p.58

The existing grant to this project has been raised by £22,600, and in addition an extension from 1974-1976 has been approved at a cost of £20,400. The extension is essentially to enable the project to work with local education authorities who have not been involved in the programme of trials, and to prepare introductory materials as an aid to diffusion.

1/73

SIXTH FORM MATHEMATICS (MA 16 01)

p.59

Two further papers are now available free on request from the project. These are both by Mr. Christopher Ormell and are entitled *Computer Education and Mathematics* and *New Ideas on the Applicability of Mathematics.*

1/73

SCIENCE 5-13 (SC 05 01)

p.61

The following guides will be published shortly:

Structures and Forces, Stage 3 (February) £1.10.
Holes, Gaps and Cavities, Stages 1 & 2 (February) £1.10.
Metals Stages 1 & 2 (March) £1.00.
Metals Background (March) £1.00.
Change Stages 1 & 2 (March) £1.00.

Please note that some of the dates given in *Dialogue* 13 have changed since going to press. Orders and inquiries to Macdonald Educational, 49 Poland Street, London W1A 2LG.

1/73

DEVELOPMENT OF SCIENTIFIC AND MATHEMATICAL CONCEPTS (SC 07 01)

p.66

The materials from this project will be available from Taskmaster Ltd., Morris Road, Clarendon Park, Leicester LE2 6B2 from January 1974.

1/73

NUFFIELD SECONDARY SCIENCE (SC 13 01)

p.70

Apparatus Guide and *Examining at CSE level* are now published by Longman at £3 and £1.80 respectively.

1/73

CAREERS EDUCATION AND GUIDANCE (IN 13 03)

p.93

This project has been granted an additional £7,340 in order that an evaluator may be appointed from January 1973.

1/73

INVESTIGATION INTO SUPPLEMENTARY PREDICTIVE INFORMATION FOR UNIVERSITY ADMISSION (EX 16 02)

p.125

The reverse side of the sheet on this project was mistakenly printed on the back of p.128 and vice versa. The corrected sheets are attached to the back of this bulletin.

The report of the sixth-formers who sat the first T.A.A. in 1967 has been published by and is available from the National Foundation for Educational Research as *After A-level? A Study of the Transition from School to Higher Education,* price 50p.

1/73

SCHOOLS COUNCIL PROJECT NEWS

Schools Council Project Information Centre,
160 Great Portland Street, London WIN 6LL. 01-580 0352

NUMBER 3 MARCH 1973

Issue three of *Project News* includes profiles of three new projects approved too late to be included in the binder of profiles or in *Dialogue* 13 – Health Education 5–13, Communication Skills in Early Childhood and Education of Severely Educationally Sub-Normal Pupils.

Details are also given of publication of the first materials from two major science projects – Integrated Science and Nuffield A-level Physical Science.

Two forthcoming reports to be published by Macmillan Education in the Schools Council Research Studies Series cover a number of research and development projects and details will not therefore appear in relation to any one particular project. These are *Pattern and Variation in Curriculum Development Projects* to be published in April at 95p and *Evaluation in Curriculum Development: 12 Case Studies* to be published in the summer. The first of these asks five basic questions in relation to 16 projects: why have projects been set up? what aims can a project have? what does a project produce? how do project teams set about their work? which people undertake project work? The second takes a selection of twelve case studies, each written by the evaluator of the project concerned, and chosen to cover as wide a range of approaches and methods as possible.

Gillian Box
Project Information Centre

REVIEW OF POST-WAR RESEARCH AND EXPERIMENTS IN THE TEACHING OF READING (EN 05 04) p.7

This survey will be published in April as *Reading for Meaning.* It is in two volumes, Volume 1: *Learning to Read* and Volume 2: *The Reader's Response.* Published by Hutchinson Educational, 3 Fitzroy Square, London W.1.
Volume 1: £3.85, Volume 2 £3.45.

3/73

LANGUAGE DEVELOPMENT IN THE PRIMARY SCHOOL (EN 05 06) p.9

The report from this project will be published in May as *The Language of Primary School Children* by Penguin Education, Harmondsworth, Middx. Price 65p.

3/73

CHILDRENS READING HABITS (EN 10 01) p.14

An additional grant of £4,132 has been approved for this project, which will now finish in September 1974.

3/73

INTEGRATED STUDIES PROJECT (HU 11 01) p.27

Six packs of pupils' material are to be published on *Exploration Man.*

1. *Getting to know you*
2. *Silent language*
3. *Myth and meaning*
4. *Finding out about the remote past: an Iron Age fort*
5. *Finding out about the recent past: 1938–1940*
6. *Finding out about the community.*

Publication by Oxford University Press, summer 1973. Price £1.50 per pack, sheets in quantities of 8.

3/73

MORAL EDUCATION 13-16 (HU 13 01) p.30

An introductory conference for LEA advisers, run by the project team, will beheld at Reading University from 17-19 July. Places may also be available for other interested persons. The fee will be £8 and applications should be sent to Mr. L. Proteroe at the Schools Council as soon as possible.

3/73

MODERN LANGUAGES PROJECT (LA 13 01) p.40

A Votre Avis Stage 6 will be published in April. Orders and inquiries to E.J. Arnold, Butterley Street, Leeds LS10 1AX.

Test materials are now available for *En Avant* Stages 2 and 3. Stage 2 costs £5.30 (+ 21p purchase tax), and Stage 3 £7.60 (+ 30p purchase tax). Each kit contains sufficient copies for an average class and all materials are non-expendable except for answer sheets.

3/73

NUFFIELD MATHEMATICS (MA 05 01) p.49

The following guides are now published by W.R. Chambers and John Murray:

Computation and Structure 5 85p

The first five modules, intended for use at the top of the middle school or in the first two years of secondary school:

Decimals 1	85p
Speed and Gradient 1	80p
Angles Courses and Bearings	£1.15
Symmetry	£1.00
Number Patterns 1	£1.00
Set of five	£4.50

3/73

PRIMARY SCHOOL MATHEMATICS: EVALUATION STUDIES (MA 05 03) p.52

A pilot study of evaluation methods has now been completed. Ten year old children in 16 primary schools from 3 LEAs were given a selection of maths questions. At the same time teachers were asked to give their opinion on the importance of each question. The questionnaire to the teachers also asked about the organisation of the subject within the school, and about classroom procedures; opinions about primary maths as taught today were also sought. Copies of the *Pilot Survey Results* are available free from the project at Reading University School of Education, London Road, Reading RG1 5AQ.

3/73

MATHEMATICS FOR THE MAJORITY CONTINUATION PROJECT (MA 13 02) p.58

A conference for mathematics advisers and those responsible for the in-service training of teachers in connection with the raising of the school leaving age will be held at St. Mary's College, Fenham, Newcastle-upon-Tyne from 11-13 July. The main function will be to examine and discuss the project materials and provide information about the dissemination programme. The fee will be £7 and applications should be sent to the project director at 3 The Cloisters, Cathedral Close, Exeter.

3/73

PROJECT TECHNOLOGY (SC 11 02) p.68

Photocell Applications, a handbook for teachers and average and above-average pupils aged 14 18, will be published in April by English Universities Press, Saint Paul's House, 8-12 Warwick Lane, London EC4P 4AH. Price 95p.

3/73

INTEGRATED SCIENCE PROJECT (SC 13 02) p.71

The first materials from this project will be published in May by Longman under the general series title *Patterns.* The course is in four parts: *Patterns 1: Building Blocks, Patterns 2: Interactions and Building Blocks, Patterns 3: Energy* and *Patterns 4: Interactions and change,* and each part comprises a teachers' guide, a pupils' guide, a Technicians manual and a number of pupils' topic books.

The books to be published in May are:

Teachers' Handbook	approx. 80p
Patterns 1: Building Blocks	approx. £1.70
Teachers' guide 1	approx. £1.00
Technicians' Manual 1	approx. £1.60

Topic books (30p–40p each):
The importance of patterns
Length and its measurements
Rocks and minerals
Chemical formulae and equations
Population Patterns
Patterns of reproduction, development and growth

Patterns 2 is expected in the summer of 1973, *Patterns 3* in Autumn 1973 and *Patterns 4* in summer 1974.
Orders and inquiries to Longman House, Pinnacles, Harlow, Essex.

A conference will be held at Bede College, Durham from 16-20 July. It is intended for those university department of education and college of education lecturers who would like to be better informed of the trend towards integrated science in general and of the Integrated Science Project in particular. The fee will be approximately £35 and applications should be sent to Dr. R. Smith, College of the Venerable Bede, Leazes House, Leazes Place, Durham, as soon as possible.

3/73

NUFFIELD A-LEVEL PHYSICAL SCIENCE (SC 16 03)

p.78

The first books in this new A-level series are now published by Penguin Education as follows:

Students' workbook 1	£2.60
Students' workbook II	£2.20
Nuffield Advanced Science Book of Data	95p
Teachers' guide I	£5.90
Teachers' guide II	£4.90
Introduction and guide	£3.20

3/73

COMMUNICATION SKILLS IN EARLY CHILDHOOD (EN 03 01)

DIRECTOR: Dr. Joan Tough

LOCATION: Institute of Education, The University, Leeds, LS2 2JT. **Telephone:** Leeds (0532) 31751

DURATION: 1973–76 **AGE RANGE:** 3–6 **GRANT:** £71,500

AREA OF INQUIRY

In 1971 the Schools Council granted £8,000 to Dr. Tough to examine the possibility of helping nursery teachers to become more fully aware of the stages of language development and of helping them to promote the development of language skills. For an outline of this work see Pre-School Language Project (EN 02 01).

As a basis for further discussion and work with teachers' groups, a draft guide entitled *Listening to Children Talk* has been prepared, which suggests ways in which teachers can listen to children talking, and appraise their language needs.

The feasibility study revealed that teachers were increasingly aware of the importance of language development and that they would welcome help in this area. This development project was therefore established:

1. to complete the development of the guide to the appraisal and fostering of language development, as a practical aid for teachers of children between the ages of three and six
2. to survey the materials in general use in nursery and reception classes, to suggest new ways of using these, and to develop new materials for stimulating child/adult dialogue or for encouraging particular uses of language if this is found to be necessary
3. to survey and appraise existing fostering programmes and practices, including TV series, and provide information for teachers at a descriptive level
4. to make a study of the experiences and skills which seem to be the necessary pre-runners to reading and writing; and to make suggestions about how such experiences might be provided and those skills developed for children whose home experience is inadequate
5. to develop materials to be used by teachers, i.e. video-tapes and/or film, and if necessary a book as background to the guide
6. to involve many nursery and infant teachers in the practical work of the project through working parties in several areas of the country.

PROCEDURE

It is intended that the areas of work outlined above should be examined in close co-operation with a number of working parties of practising nursery and infant teachers. During the course of the project it is hoped to produce a final version of the guide *Listening to Children Talk*, a background book to accompany it, a series of video-tapes, a film, and publications on aspects of language such as preparedness for reading.

RELEVANT PAPERS

Joan Tough, 'Communication Skills in Early Childhood Project', *Dialogue* 14, (in press).

FURTHER INFORMATION will be available in due course from the project director or from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

N.B. THIS PROJECT DOES NOT START UNTIL SEPTEMBER 1973.

MARCH 1973

HEALTH EDUCATION 5–13 (IN 05 04)

DIRECTOR: **Trefor Williams**

LOCATION: St. Osyth's College of Education, Clacton-on-Sea, Essex. **Telephone:** Clacton (0255) 22324

DURATION: 1973–76 **AGE RANGE:** 5–13 **COST:** £36,500

AREA OF INQUIRY

This project was set up:

1. to identify the concepts fundamental to health education
2. to develop a rationale of health education professionally acceptable to teachers, and to further develop an encouraging environment in educational practice generally.
3. to develop teachers' guides for the health education of pupils 5–13 and to identify and develop materials to support them.

PROCEDURE

Initially the project team will develop a conceptual framework or structure to form the basis of the teachers' guides, taking into account the core content of health education as identified by teachers, health education workers, medical personnel, parents etc. in this country, and similar research undertaken in America, Sweden and elsewhere.

During the development phase it is hoped to work with 12 schools in each of three areas, with two teachers from each school working in a writing group which will be developing materials.

DIFFUSION

It is hoped to develop video-tape recordings and materials specifically for diffusion, and to hold a number of conferences in the final year.

FURTHER INFORMATION will be available in due course from the Schools Council Project Information Centre, 160 Great Portland Street, London W1N 6LL.

N.B. THIS PROJECT DOES NOT START UNTIL SEPTEMBER 1973. Meanwhile the director would be very pleased to hear from groups or individuals engaged in health education in schools, particularly if this is being attempted within the context of curriculum development. Mr. Williams would welcome an outline of what is being done, together with any materials which might have been developed.

MARCH 1973

T/R

EDUCATION OF SEVERELY EDUCATIONALLY SUB-NORMAL PUPILS (SP 05 02)

DIRECTOR: **Dr. Peter Mittler**, Director, Hester Adrian Research Centre, The University, Manchester M13 9PL.

LOCATION: not yet known

DURATION: 1973–76 **AGE RANGE:** 5–16 **COST:** £50,100

AREA OF INQUIRY

In April 1971 the Department of Education and Science and the local education authorities in England and Wales took over responsibility from the Ministry of Health for the education of some 35,000 severely sub-normal children. Very little is at present known about the characteristics of the children and no investigation has been undertaken to date of curriculum content.

The aims of this project are therefore:

1. to launch a detailed survey of current teaching practices and of the attitudes and priorities of teachers in the new schools for severely educationally sub-normal pupils. This survey will be primarily concerned with language and communication skills, but other aspects of the curriculum will also be considered
2. to evaluate current teaching methods in the light of information gained from the survey and to bring together and review what appears to be the best existing practice
3. to design and evaluate teaching materials, bearing in mind the practical constraints placed on most teachers in purchasing and using elaborate apparatus.

PROCEDURE

The project will initially be limited to the 14 schools for the severely educationally sub-normal within the areas of Cheshire and Manchester.

The first year will be spent in conducting a survey of current practice, based on questionnaires and follow-up visits of between 10 and 20 days per school. Systematic observations of teaching methods will be made and teachers will be interviewed at some length. It is hoped also to form a small workshop of practising teachers.

The second year will involve a detailed analysis of this survey. Suggestions for language teaching programmes and curricula will be introduced to schools, possibly in the form of short bulletins on specific aspects of language teaching. The third year will be devoted to the introduction of further curriculum suggestions and to ongoing evaluation studies.

DIFFUSION

It is hoped to produce a number of bulletins during the course of the project which will be available outside the main project areas.

RELEVANT PAPERS AND PUBLICATIONS

P. Mittler 'The teaching of language' in Clarke A. and Clarke A.D.B. (eds.) *Mental Retardation and Behavioural Research*, Churchill/Livingstone, 1973 (in press).

FURTHER INFORMATION will be available in due course from the Schools Council Project Inofrmation Centre, 160 Great Portland Street, London W1N 6LL.

N.B. THIS PROJECT DOES NOT START UNTIL SEPTEMBER 1973.

MARCH 1973

SCHOOLS COUNCIL
PROJECT NEWS

ls Council Project Information Centre,
0 Great Portland Street, London WIN 6LL. 01-580 0362

NUMBER 4 MAY 1973

Two further projects have recently been approved by the Programme Committee and profiles of these are included in this issue. Curriculum Enrichment for Gifted Children will be directed by Dr. Eric Ogilvie, Principal of Northampton College of Education, and director of the original research study on Gifted Children in Primary Schools. The Sixth Form Russian Teaching Materials Project directed by Mr. J.R. Lyons of Coleshill School, Birmingham, was started in January 1972 and the Council's small grant is intended to supplement existing funds.

For the benefit of new subscribers, perhaps I should repeat that Project News is sent free to all those who buy or are on the free distribution list for sets of project profiles. Items included in it are intended to update the information given in the profiles and thus circulation is restricted to those subscribers only. If there are ways in which the bulletin could be improved to meet your own particular requirements, do please let me know.

Gillian Box
Project Information Centre

LINGUISTICS AND ENGLISH TEACHING: INITIAL LITERACY PROJECT (EN 05 01) p.2

Sixteen new *Breakthrough* books, written by the authors of *Breakthrough to Literacy* after the conclusion of the project, were published in April. These are:

Yellow Set D: *Looking after baby; eating; reading; the dog's dream.*
55p the set.

Yellow Set E: *buttons and bows; helping; writing; a fairy story.*
55p the set.

Green Set A: *The bike; the canal; the Japanese garden; the paper round.*
55p the set.

Green Set B: *Mending a puncture; the swimming bath; my friend's country; the record player.*
55p the set.

In response to many requests, the two Green Sets, whilst still retaining the simplicity of earlier books, contain stories which are more sophisticated and thus suitable for slower older children.

Published by and available from Longman Group Limited, Longman House, Burnt Mill, Harlow, Essex.

5/73

ENGLISH FOR IMMIGRANT CHILDREN (EN 05 03) p.5

Radio Camley (Scope Senior Course) is now available on both 5" open-spool tape and on a C 60 Compact Cassette. The tape costs £3.25 + tax, the cassette £2.00 + tax.

Published by and available from Longman Group Limited, Longman House, Burnt Mill, Harlow Essex.

5/73

TEACHING ENGLISH TO WEST INDIAN CHILDREN (EN 07 01) p.10

Concept 7-9, the 35 minute, 16mm, black and white film is now available from the National Audio-Visual Aids Library, Paxton Place, Gipsy Road, London SE27 9SR. (Price £60 (£1.50 to hire).

5/73

HISTORY, GEOGRAPHY, SOCIAL SCIENCE 8-13 (HU 08 03) p.25

This project has recently been granted a one-year extension until 1975 at a cost of £33,000 in order to extend its programme of diffusion, and to allow for an evaluation of this programme.

5/73

HISTORY 13-16 (HU 13 02)

p.31

The first issue of a newsletter has recently been produced by and is available from the project. This includes a summary of the project's current thinking on the nature of history and its relevance in schools; outlines a proposed syllabus for a two year history course at GCE/CSE level; and discusses the proposed programme of trials.

5/73

HUMANITIES CURRICULUM PROJECT (HU 14 01)

p.32

Two further introductory one day courses are planned by this project, to be held at the Schools Council on 29 June and 5 October from 11 a.m. until 4.00 p.m. The cost will be 75p, payable on arrival, to include morning coffee, lunch and tea, and applications should be sent to Mr. John Fincken, Schools Council 160 Great Portland Street, London W1N 6LL.

5/73

CAMBRIDGE SCHOOLS CLASSICS PROJECT (LA 11 01)

p.30

Newsletter 4, now available from the project, gives details of progress on the units which remain to be published, and a list of the prescribed texts for the 1974 O-level examination.

A few places are still available on a residential training course for teachers who are about to begin using the Cambridge Latin course, to be held at Churchill College, Cambridge, from 20-23 July. The course will include lectures and practical sessions on the content of the Latin course, the linguistic scheme, teaching methods, the use of tapes and slides, and O-level. Application forms and further details may be obtained from the project at 17 Panton Street, Cambridge CB2 1HL.

5/73

DESIGN AND CRAFT EDUCATION (CR 13 02)

p.48

Survey 11 is now available from the project, price 17p. This issue includes articles on work with motor vehicles, design implications of a working and living space, industry and the school curriculum, community service as a design-based activity, and the design and construction of an adventure playground. Copies may be inspected in all teachers' centres, to each of which a complimentary copy is sent. *Survey 12* will include details of publications and examinations and will be the last issue of the journal in its present format. Its work will continue through the medium of the journal *Studies in Design Education and Craft*.

5/73

GIFTED CHILDREN IN PRIMARY SCHOOLS (IN 05 01)

p.85

The research report from this project will be published in August by Macmillan Education in the Schools Council Research Studies series, price £5, entitled *Gifted Children in Primary Schools.* Part I proposes a definition of giftedness, accompanied by teachers' views and research data on the need of the gifted child, the efficiency of recognition and the criteria by which giftedness may be recognised. Part II analyses the provisions, policies and practices of schools and LEAs, and the final chapter considers the implications of the findings for the future.

For details of the development project arising out of this research, see Curriculum Enrichment for Gifted Children (IN 07 01) at the end of this bulletin.

5/73

NORTH WEST REGIONAL CURRICULUM DEVELOPMENT PROJECT (IN 13 02)

p.92

Section Two of *Situations*, an RSLA course in English, will be published by Blackie & Son in July 1973 at approximately £45. The kit contains sufficient material to equip a class of up to 35 pupils and comprises a wallet of teacher's notes, 25 wallets of pupils' materials, a tape of songs, dramatisations and speech, 20 colour slides, 40 character cards, a wallet of library workcards and a teachers' guide.

A sample pack and further details are available from Blackie & Son Ltd., Bishopbriggs, Glasgow G64 2NZ.

5/73

PREPARATION, ASSESSMENT AND SELECTION OF SIXTH FORMERS FOR UNIVERSITY (EX 16 07)

p.130

The report of this research project will be published in August by Macmillan Education in the Schools Council Research Studies Series, price £3.25. Entitled *Paths to University: Preparation, Assessment, Selection,* the report attempts to provide a comprehensive factual survey of what is taking place in France, West Germany, Sweden, USA and USSR in the three crucial areas of curriculum, methods of assessment and admissions procedures.

5/73

SYLLABUS CONSTRUCTION AND EXAMINING TECHNIQUES FOR ADVANCED SIXTH FORM WORK (EX 16 09)

p.132

A one-year extension until 1974 has been granted to this project at a cost of £4,144.

5/73

SCHOOLS COUNCIL

PROJECT NEWS

Schools Council Project Information Centre,
160 Great Portland Street, London WIN 6LL. 01-580 0362

NUMBER 5 JULY 1973

This issue of Project News is the last before the third edition of the Project Profiles is published. The profiles have now been completely revised and are currently at the printers, so with any luck they should be ready for distribution by the end of September. The free distribution will be the same as last year: copies will go to the local education authorities, colleges, institutes and departments of education, HMIs and teachers centre wardens. Anyone wishing to purchase a set should send their order together with 70p (to include packing and postage; 75p overseas) to the Despatch Section, Schools Council.

In addition to a number of extensions to existing projects, one new project has recently been approved by Programme Committee and details are given in this issue. Early Mathematical Experiences will be directed by Professor and Mrs. Geoffrey Matthews at Chelsea College of Science and Technology and will run from September 1974 – August 1977.

The next issue of Project News will be distributed in November.

Gillian Box
Project Information Centre

ENGLISH FOR IMMIGRANT CHILDREN (EN 05 03) p.5

Scope Senior Course. *Students' Book 3: Reading for Work* (80p) and a *Work Book* (25p) have now been published. A tape (£3.25) will be available in September and the *Teachers' Book* (£2) will be published in November.

Published by Longman Group Limited, Longman House, Burnt Mill, Harlow, Essex.

A one-day meeting will be held at the Schools Council on Friday 2 November 1973. This meeting will enable teachers, advisers, lecturers and other educationalists to discuss the Scope Senior Course materials with Miss June Derrick and her former colleagues on the project team. The conference will begin at 10.45, ending at 4.00 p.m. The conference fee, which includes coffee, lunch and afternoon tea, will be £1.00. Nominations should be made to Miss Helen M. Carter, Schools Council, 160 Great Portland Street, London W1N 6LL.

7/73

WRITING ACROSS THE CURRICULUM 11-13 (EN 11 04) p.19

A discussion document *From Information to Understanding,* is available from the Project, price 30p (cheques etc. to University of London Institute of Education). The paper takes several examples of children's talk and writing and traces what learning takes place subsequent to the initial presentation of new information and as a result of the child being motivated by the situation to verbalise his knowledge. The paper is already being used as a basis for discussion in a number of schools, colleges of education and teachers' centre groups. It is the first of a series.

7/73

HUMANITIES CURRICULUM PROJECT (HU 14 01) p.32

The pack *Living in Cities* has now been published and is available from Heinemann Educational Books Ltd., 48 Charles Street, London W1X 8AH, price £36 + 40p VAT for a complete pack and £12 + 68p VAT for the teachers' element only. All of the eight packs prepared by the project have now been published.

The introductory one-day course planned for Friday 5 October at the Schools Council has been cancelled. There are no plans to hold future one-day courses. but details of the five-day training courses are available from CARE.

7/73

GEOGRAPHY 14-18 (HU 14 03) p.35

Dr. Gladys Hickman has retired and has been succeeded by Mr. John Reynolds as director of the project

7/73

CAMBRIDGE SCHOOLS CLASSICS PROJECT (LA 11 01) p.39

The tapes for units 1, 2 and 3 of the *Latin Course* will be available in cassette form on 30 August from Cambridge University Press., P.O. Box 92, London NW1 2DB, price £3.80 + VAT each. Unit 3 slides will be available in September price approximately £8.

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PRIMARY SCHOOL MATHEMATICS : EVALUATION STUDIES (MA 05 03) p.52

This project has been granted a two year extension until December 1975 at a cost of £11,000. This extension is to enable the project to undertake (i) a survey to investigate children's competence in mathematics in wider topic areas than previously attempted and will be extended to some 50 primary schools, and (ii) an investigation into teachers' attitudes and methods. Teacher interviews and classroom observations will also be carried out.

A revised list of local schemes of work in primary mathematics and teachers' groups has been prepared. Copies may be obtained without charge from the Primary Maths. Project, Reading University School of Education, London Road, Reading RG1 5AQ.

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MATHEMATICS FOR THE MAJORITY (MA 13 01) p.56

A further guide *Geometry for Enjoyment* will be published in September.

Published by and available from Chatto and Windus Ltd., Granada Publishing Ltd., Park Street, St. Albans, Herts.

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SCIENCE 5-13 (SC 05 01) p.61

This project has recently been granted a one-year extension until September 1974 at a cost of £6,600 to enable it to extend its programme of dissemination.

Two further titles will be published in August *Ourselves – Stages 1 and 2* (£1) and *Like and Unlike – Stages 1 and 2* (£1.10)

Published by and available from Macdonald Educational, 49/50 Poland Street, W1A 2LG.

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PROJECT TECHNOLOGY (SC 11 02) p.68

Three further Project Technology handbooks will be published in September: *Simple Fluid Flow, Industrial Archaeology for Schools 1 and 2* and *Basic Electrical and Electronic Construction Methods.*

Published by and available from Heinemann Educational Books Ltd., 48 Charles Street, London W1X 8AH.

Control Technology: an information pack, containing a description of the course, detailed sheets on equipment and suppliers and specimens of pupil material, is now available free. For schools wishing to start the course in September, the original trial pupils' material is available for the first two units of the course, *Structures,* and *Gears.* Teachers' notes will be supplied with each order.

All available from the National Centre for School Technology, Trent Polytechnic, Burton Street, Nottingham NG1 4BU.

Control Technology will be published shortly by English Universities Press, Saint Paul's House, 8-12 Warwick Lane, London EC4P 4AH.

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INTEGRATED SCIENCE PROJECT (SC 13 02) p.71

Patterns 2 : Interactions and building blocks will be published in October. It includes pupils' guide 2, Teachers' guide 2, Technicians' Manual 2, and two new topic books: *The diversity of life* and *Science and decision-making.*

Order and inquiries to Martin Pick, Longman Group Limited, Longman House, Burnt Mill, Harlow, Essex.

EDUCATION FOR A MULTI-RACIAL SOCIETY (IN 05 03) p.87

The report of the survey of current practice of the teaching of race relations in schools will be published as *Multi-Racial Education : Need and Innovation,* Working Paper 50, Evans/Methuen Educational, November 1973.

MASS MEDIA AND THE SECONDARY SCHOOL (IN 11 01) p.90

The report from this project will be published on 23 August in the Research Studies Series as *Mass Media and the Secondary School* by Graham Murdock and Guy Phelps. Part 1, the teachers' study, explores the variety in the attitudes of teachers and their use of media, and examines the degree of their understanding of the 'pop' culture. Part II, the media, and examines the degree of their understanding of the 'pop' culture. Part II, the pupils' study, attempts to determine the extent to which the pop media are central to the cultural experiences of students and the ensuing effect on their commitment to school.

Published by Macmillan Education, Houndmills, Basingstoke, Hants. Price £3.50.

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CAREERS EDUCATION AND GUIDANCE (IN 13 03) p.93

This project has been granted an extension of three years until August 1977 at a cost of £139,780 in order to develop a Continuation course of structured, sequential material designed to meet the needs of pupils throughout the later years of Secondary education and to develop a strategy of effective dissemination.

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ATTITUDES TO AND MOTIVATION FOR THE LEARNING OF WELSH AND ENGLISH IN WALES (WE 10 01) p.101

Two reports from this project will be available shortly in the Research Studies Series. An abbreviated version of the full bilingual report will be published on 13 September entitled *Some aspects of Welsh and English : a survey in the schools of Wales / Agweddau ar gymraeg a saesneg : arolwg yn ysgolion Cymru* and describes patterns of attitude towards the two languages and how these change as children grow older. The full report will be published in English only as *Attitudes to Welsh and English in Wales* later in 1973.

Published by Macmillan Education, Houndmills, Basingstoke, Hants. Price £2.

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WELSH AS A FIRST LANGUAGE AT SECONDARY STAGE (WE 11 02) p.103

This project has been granted an extension of one year until August 1975 at a cost of £14,094 in order to meet the increased costs of materials and to re-phase the work of finalising materials for publication.

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